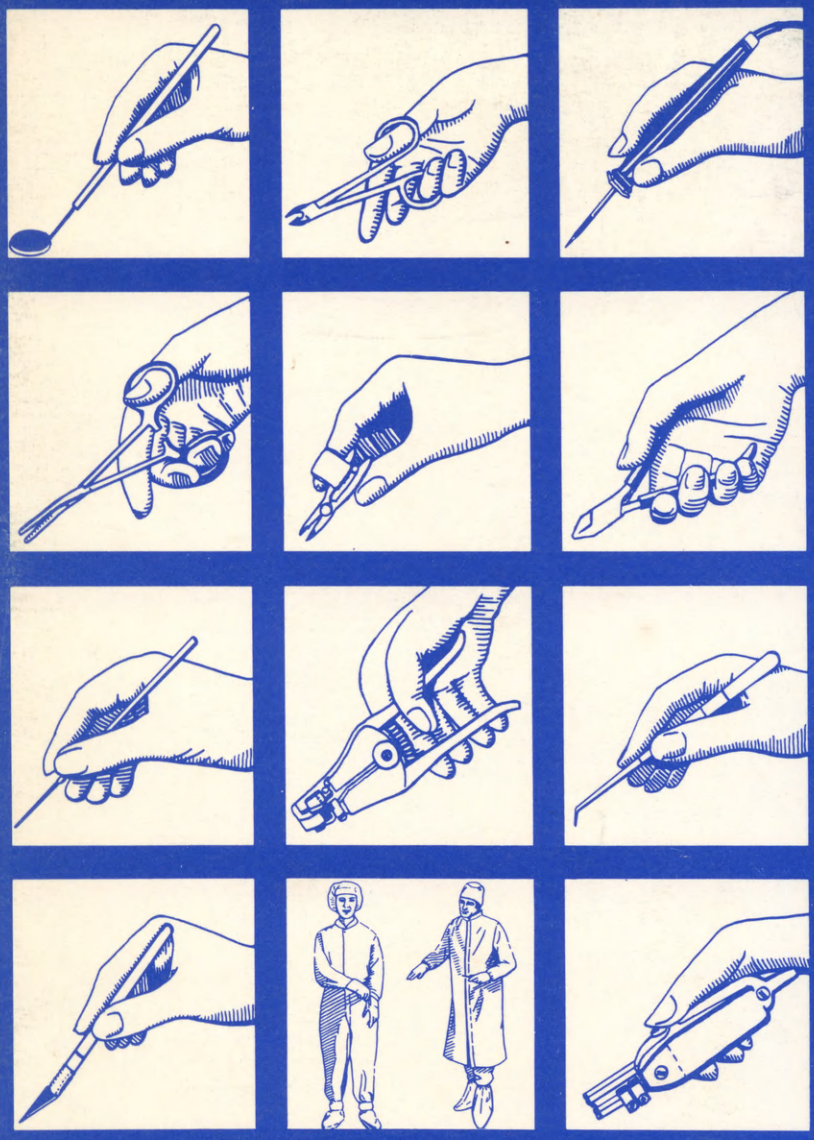


Catalog #16
See our Supplements for Additional Items

# TECHNI-TOOL, INC.

1216 ARCH STREET, PHILADELPHIA, PENNSYLVANIA • ZIP CODE: 19107

AREA CODE (215) 568-4457 - 58, 4482 - 83 ● PRODUCTS FOR ELECTRONIC ASSEMBLY & MAINTENANCE

Specialists in tools for integrated circuitry

# TECHNI-TOOL, INC.

1216 ARCH STREET, PHILADELPHIA, PENNSYLVANIA

ZIP CODE: 19107 • AREA CODE 215 568-4457-58, 4482-83


- ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
- SPECIFY CATALOG PAGES, NUMBERS AND SIZES WHERE APPLICABLE
- ALL PRICES F.O.B. PHILADELPHIA UNLESS OTHERWISE STATED
- QUANTITY DISCOUNTS AVAILABLE WHERE INDICATED
- RATED COMPANIES SHOULD SUBMIT ORDERS ON COMPANY ORDER FORM
- NON RATED COMPANIES SHOULD FORWARD FINANCIAL REFERENCES
- NON RATED COMPANIES SHOULD REQUEST C.O.D. SHIPMENT TO AVOID SHIPPING DELAY UNTIL CREDIT IS APPROVED
- TELEPHONE ORDERS WILL BE ACCEPTED BUT SHOULD BE FOLLOWED BY CONFIRMATION
- ORDERS TO INSTITUTIONS WILL NOT BE SENT WITHOUT PURCHASE ORDER NUMBERS
- REQUESTS FOR QUOTATIONS AND ADDITIONAL INFORMATION SHOULD BE FORWARDED USING STANDARD CORPORATE FORM
- WE RESERVE THE RIGHT TO CORRECT STENOGRAPHIC ERRORS IN QUOTATIONS
- QUOTATIONS AFTER BEING ACCEPTED WILL BE SUBJECT TO CREDIT APPROVAL
- DISCREPANCIES SHOULD BE REPORTED IMMEDIATELY UPON RECEIPT OF SHIPMENT. ADJUSTMENTS WILL BE MADE ACCORDINGLY
- ALL CLAIMS WILL BE REVIEWED, IF MADE WITHIN 30 DAYS FROM DATE OF SHIPMENT
- MERCHANDISE SHOULD NOT RE RETURNED UNLESS WE HAVE BEEN NOTIFIED AND AGREED TO THE RETURN
- EQUIPMENT SENT ON APPROVAL IS SUBJECT TO 10% RESTOCKING CHARGE
- CALL OR WRITE FOR INFORMATION ON THE REPAIR OR SERVICING OF ANY ITEM IN THIS CATALOG
- MINIMUM ORDER CHARGE OF $3.00 ON ORDERS UNDER $10.00. ORDERS LESS THAN $10.00 CAN BE SENT C.O.D.
- SPECIAL MODELS AND CUSTOM WORK WILL BE QUOTED ON A TIME PLUS MATERIALS BASIS
- REPAIRS TO E.T.M. PLIERS SHOULD BE SENT DIRECTLY TO THE FACTORY
- TECHNICAL LITERATURE WILL BE FORWARDED UPON REQUEST
- THE ITEMS REPRESENTED ARE GUARANTEED TO BE OF THE HIGHEST QUALITY

## TO OUR CUSTOMERS

Techni-Tool is a hybrid company that started fifteen years ago by bringing to America's finest computer manufacturers a line of high quality service tools.

With continued requests from many varied sources demanding new products and services, we have become a well-known house with a multitude of products.

In keeping pace with the constantly changing state of the art, we not only create items; such as the I.C. Extracting Tool, but distribute the most comprehensive selection of pliers, tweezers, wire strippers, etc. in the nation.

Techni-Tool makes available items from its' American and Foreign resources to provide our customers with a Single Source to meet any request.

Many of the product groupings featured in our catalog are only partial listings and can be supplied in their entirety. We are always available for consultation on new and special innovations.

Look for our latest entries into the realm of I.C. handling equipment - the products of our continuing research in electronics.

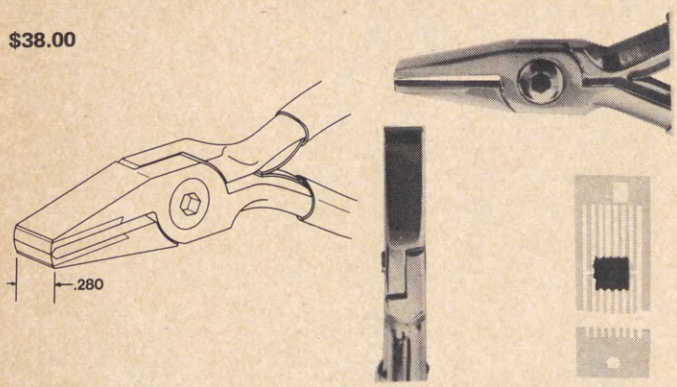
© COPYRIGHT TECHNI-TOOL, INC. 1969

# ETM PRECISION PLIERS

**QUANTITY DISCOUNTS:** 1-9 Net 10-24 3% 25-49 5% 50-99 7% 100-249 10% 250 + Ask for Quotations

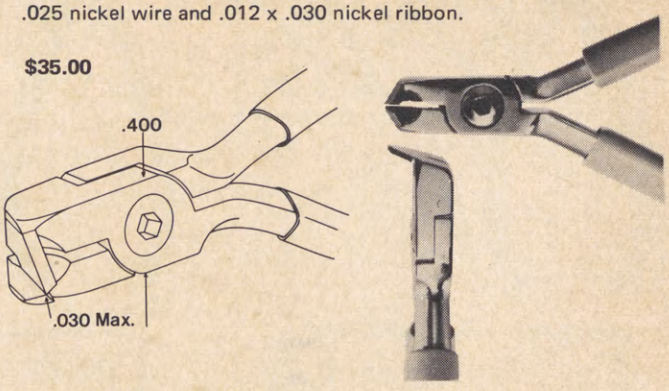
**No. 1012 Wide End Cutter** Designed to trim up to five flatpack leads. Handles nickel wire to .030 and nickel ribbon to .012 x .030.

**$38.00**



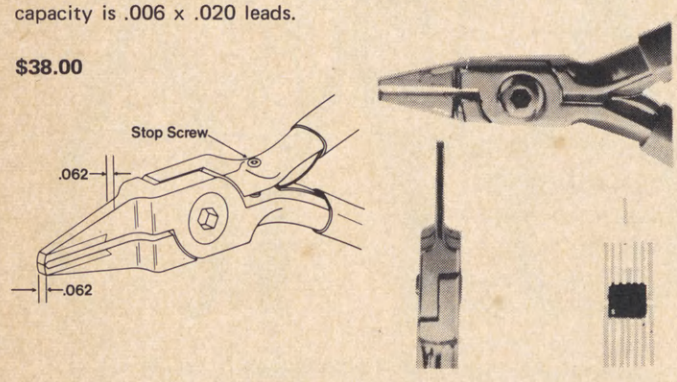

**No. 1013 Angled Flush Cutter** Sharper point and narrower head than Model 1005, and with maximum tip radius of .030. Handles .025 nickel wire and .012 x .030 nickel ribbon.

**$35.00**



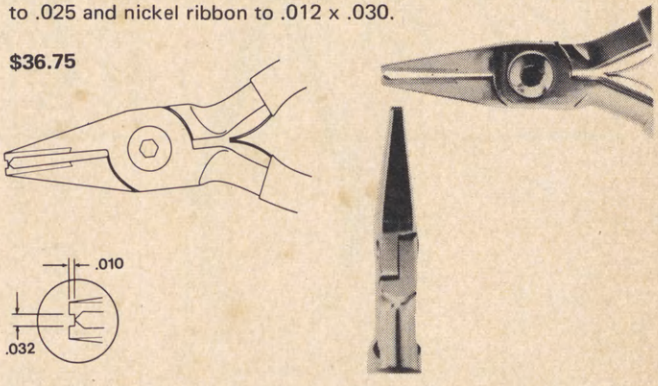

**No. 1018 Narrow End Cutter** Tip .062 wide trims individual flatpack lead. Features stop screw (not shown). Maximum cutting capacity is .006 x .020 leads.

**$38.00**



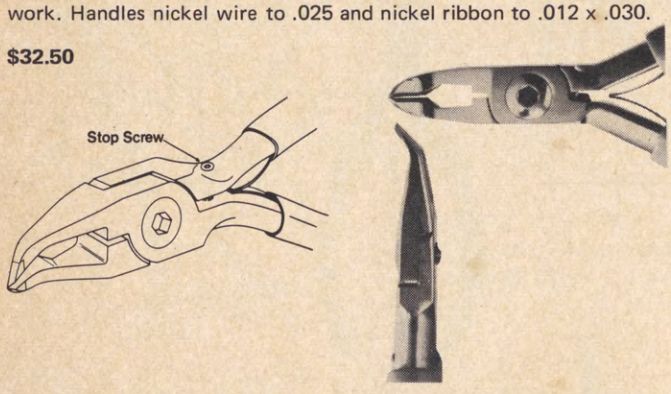

**No. 1019 Step End Cutter** Prevents injury to soldered joint or nicking of ribbon in welded module fabrication. Handles nickel wire to .025 and nickel ribbon to .012 x .030.

**$36.75**



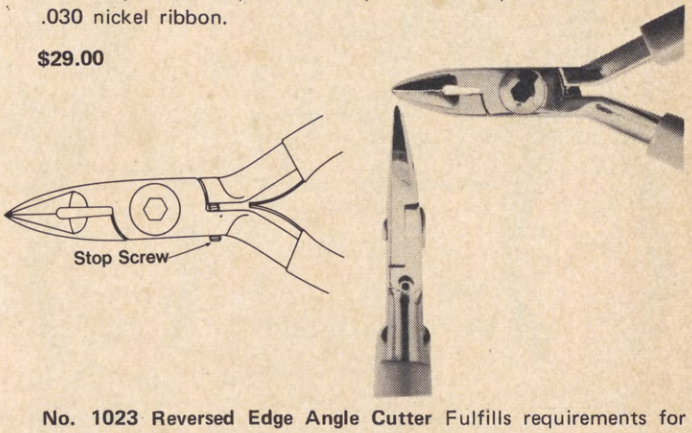

**No. 1020 General Purpose Angle Cutter** Versatile 45° angle cutter with slender head and larger opening for enhanced visibility of work. Handles nickel wire to .025 and nickel ribbon to .012 x .030.

**$32.50**



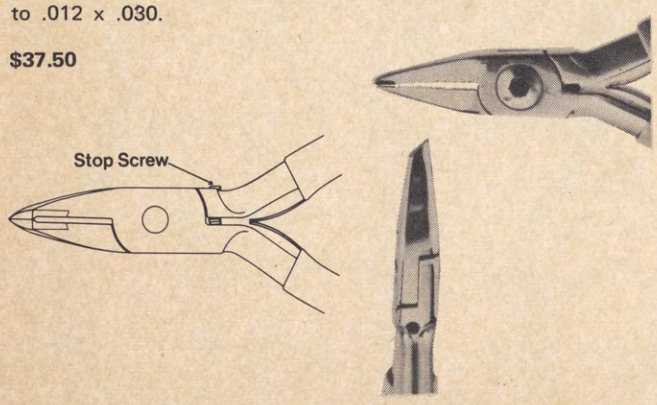

**No. 1021 Mini-Cutter with Stop** Identical to No. 1003 Mini-Cutter with stop screw to prevent over-pressure on tips. Handles .010 x .030 nickel ribbon.

**$29.00**



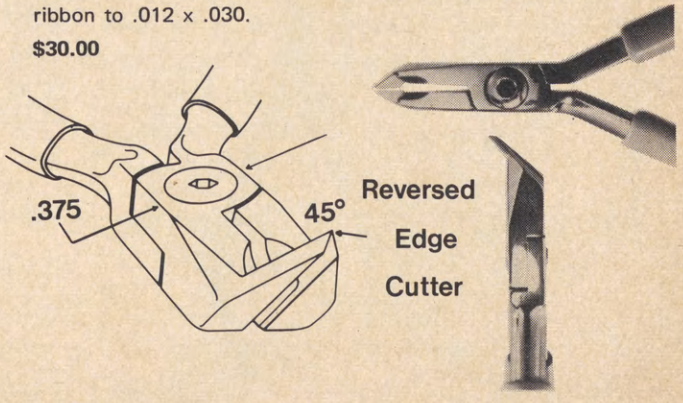

**No. 1022 Miniature Tip Angle Cutter** Stop screw prevents over-pressure on tips. Handles nickel wire to .032 and nickel ribbon to .012 x .030.

**$37.50**

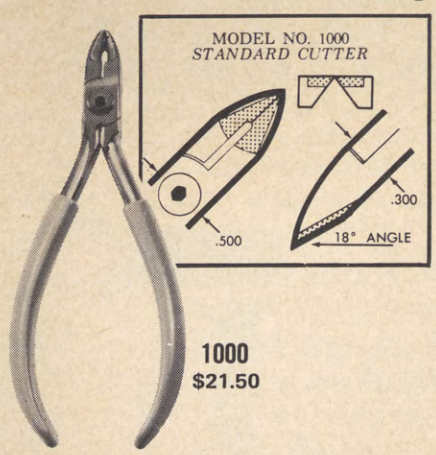



**No. 1023 Reversed Edge Angle Cutter** Fulfills requirements for cutter with blades on top. Handles nickel wire to .025 and nickel ribbon to .012 x .030.

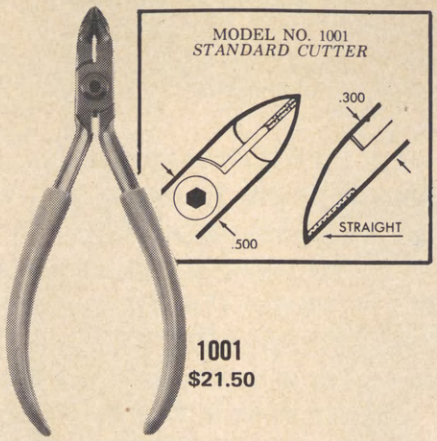
**$30.00**



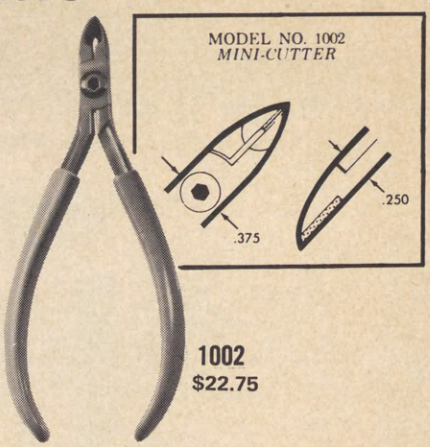
# ETM PRECISION PLIERS



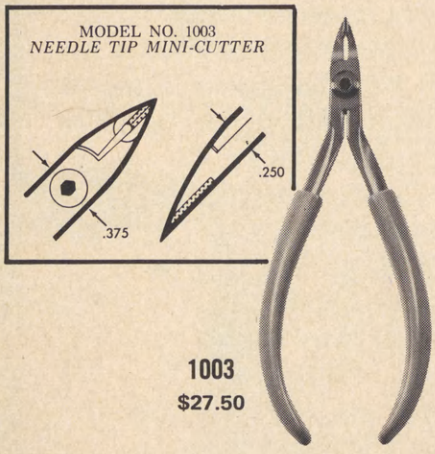

**1000**
**$21.50**



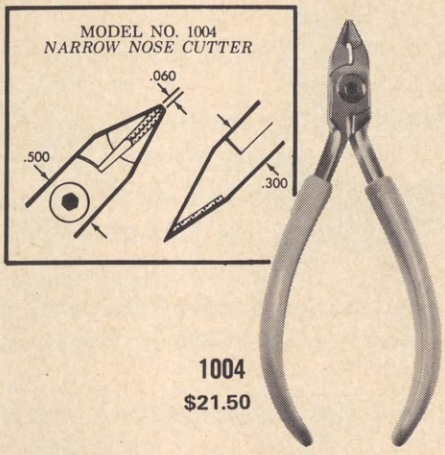

**1001**
**$21.50**



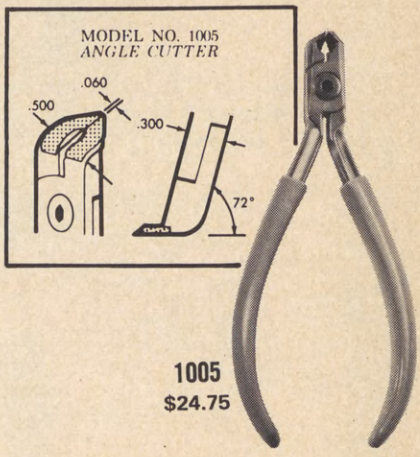

**1002**
**$22.75**



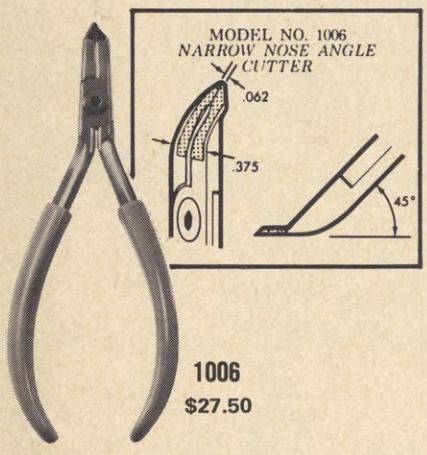

**1003**
**$27.50**



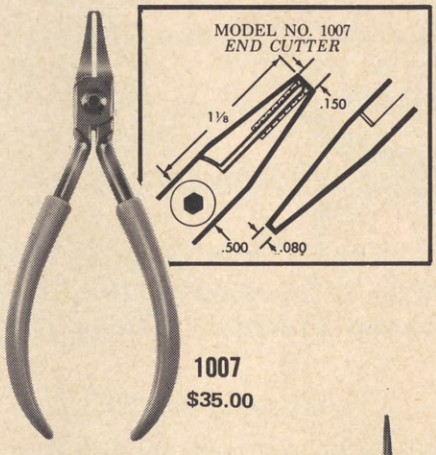

**1004**
**$21.50**



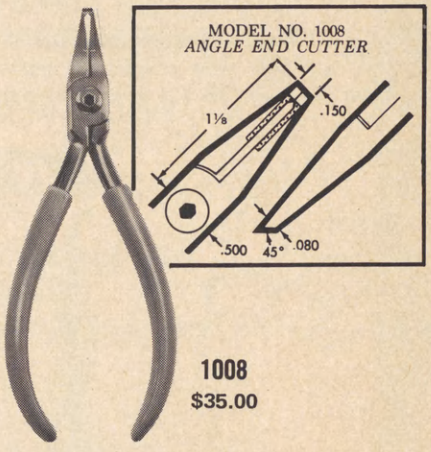

**1005**
**$24.75**



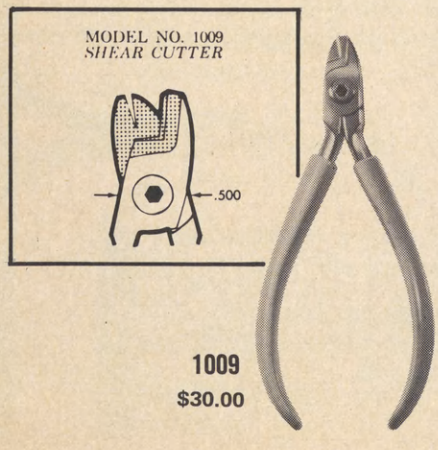

**1006**
**$27.50**



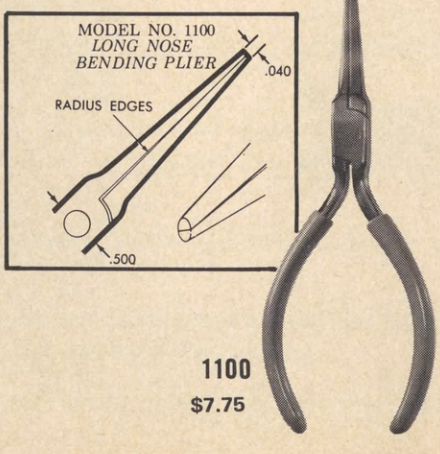

**1007**
**$35.00**



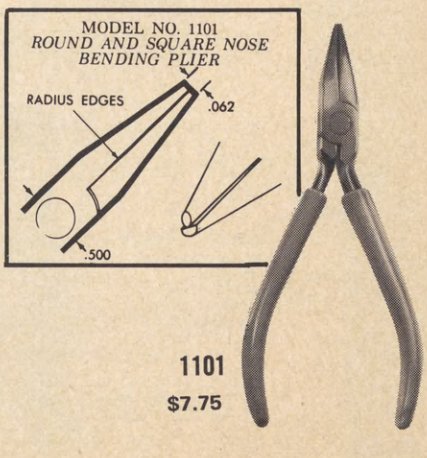

**1008**
**$35.00**




**1009**
**$30.00**




**1100**
**$7.75**




**1101**
**$7.75**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ETM PRECISION PLIERS

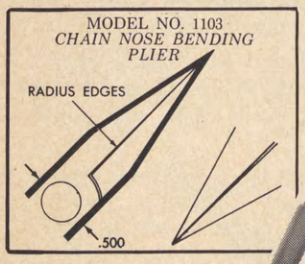
**QUANTITY DISCOUNTS:** 1-9 Net 10-24 3% 25-49 5% 50-99 7% 100-249 10% 250 + Ask for Quotations

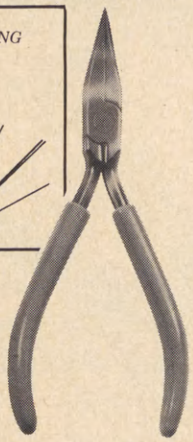
**ETM Shear Cutters** cut a square end and eliminate hazard to shock-sensitive components. These cutters are ideal for butt welding requirements.

**ETM Cutting Pliers** have tool steel inserted tips. Where applicable (Model Nos. 1000, 1005, 1006, 1007, and 1008) backing ledges extend behind the inserted tips.

**ETM Pliers** are hard chrome plated with full polish finish. They are supplied with vinylite cushion grips and may be fitted with removable return springs at small extra cost.

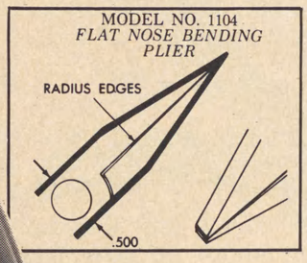
**ETM Bending Pliers** are non-serrated and have radius edges. Tips are custom fitted to assure perfect mating.

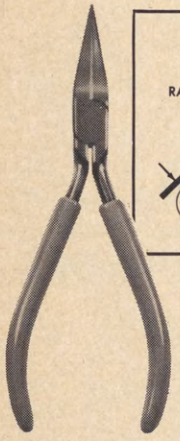


**1103**
**$7.75**

**BETTER TOOLS DO NOT COST MORE!** Initial investment may be greater but the longer life span (usually 10 times as long as the standard **$5.00** cutter) of the ETM cutting plier results in a considerable dollar savings in the long run.



**1104**
**$7.75**

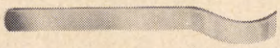
Some models have an adjustable stop-screw to prevent undue pressure on the blades. Another ETM advance cutter for longer tool life.

| MODEL NO. | TYPICAL APPLICATIONS | | | Maximum Diameters of Typical Materials ETM Cutters Are Designed for (Equivalent Area for Non-Round Wire) | | | DISTINGUISHING FEATURES |
|---|---|---|---|---|---|---|---|
| | CUT | SHEAR | BEND | SOFT (SILVER, NICKEL, COPPER, GOLD, ETC.) | MEDIUM (BRASS, DUMET,® KOVAR,® NICHROME,® ETC.) | HARD (SS SPRING WIRE, ETC.) | |
| 1000 | X | | | .032 (32 mil) | .025 (25 mil) | .012 (12 mil) | 18° Angle |
| 1001 | X | | | .025 (25 mil) | .020 (20 mil) | .010 (10 mil) | Straight Angle |
| 1002 | X | | | .025 (25 mil) | .015 (15 mil) | .006 (6 mil) | Miniature Size |
| 1003 | X | | | | .006 x .020 Kovar® Ribbon | | Needle Tip Miniature Size |
| 1004 | X | | | .025 (25 mil) | .020 (20 mil) | .010 (10 mil) | Narrow Nose |
| 1005 | X | | | .025 (25 mil) | .020 (20 mil) | .010 (10 mil) | 72° Angle |
| 1006 | X | | | .025 (25 mil) | .020 (20 mil) | .010 (10 mil) | 45° Angle |
| 1007 | X | | | .032 (32 mil) | .025 (25 mil) | .010 (10 mil) | End Cutter |
| 1008 | X | | | .032 (32 mil) | .025 (25 mil) | .010 (10 mil) | 45° Angle End Cutter |
| 1009 | | X | | .040 (40 mil) | .030 (30 mil) | | Cuts Square End |
| 1100 | | | X | | | | Long Nose |
| 1101 | | | X | | | | Round and Square Nose |
| 1102 | | | X | | | | Round Nose |
| 1103 | | | X | | | | Chain Nose |
| 1104 | | | X | | | | Flat Nose |
| 1012 | X | | | .030 (30 mil) | Ribbon .012 x .030 (30 mil) | | End Cutter |
| 1013 | X | | | .025 (25 mil) | Ribbon .012 x .030 (30 mil) | | Tip Radius .030 |
| 1018 | X | | | | Leads .006 x .030 (20 mil) | | .062 Wide Tip |
| 1019 | X | | | .025 (25 mil) | Ribbon .012 x .030 (30 mil) | | Recessed Cutter |
| 1020 | X | | | .025 (25 mil) | Ribbon .012 x .030 (30 mil) | | 45° Angle Cutter |
| 1021 | X | | | | Ribbon .010 x .030 (30 mil) | | Stop Screw |
| 1022 | X | | | .032 (32 mil) | Ribbon .012 x .030 (30 mil) | | Fine Points |
| 1023 | X | | | .025 (25 mil) | Ribbon .012 x .030 (30 mil) | | Cutter on Top |

**GRIPS**

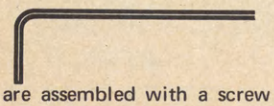
Grips are made of vinylite and are available in three colors (blue, coral and green) for color coding tool for production or convenience purposes.

**$2.50** 10 pair (green, blue or coral. Specify)



**SPRINGS**

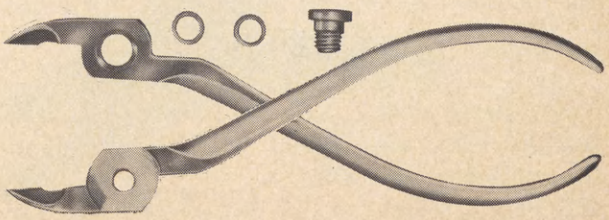
Removable return springs may be ordered separately and installed in any ETM plier by the user. . . . . **$1.00 set**



**REPAIR KIT**

Cutting Pliers are assembled with a screw and shims for long life, superior cutting capability, and repairability. The repair kit contains an allen wrench, a screw and shims of various thicknesses. Complete repair instructions are included. **$4.50**

**TOOL STEEL INSERTED TIPS HARDENED TO 64-66 R/C**
**HAND LAPPED JOINTS ASSEMBLED WITH PRECISION SCREW AND SHIMS**
**DIAMOND HONED CUTTING EDGE**
**HARD CHROME PLATED**



**ALL PRICES SUBJECT TO CHANGE** **F.O.B. PHILADELPHIA**

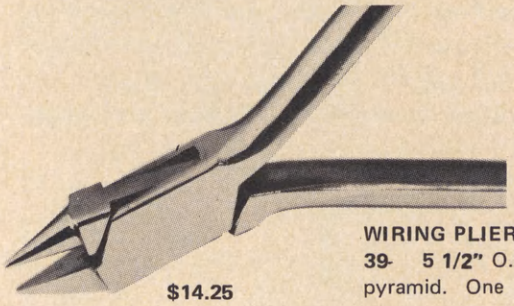
# TEC-'S' PLIERS - STAINLESS STEEL - BOX JOINTS

**QUANTITY DISCOUNTS:** 1-9 Net 10-24 3% 25-49 5% 50-99 7% 100-249 10% 250 + Ask for Quotations

Constructed from high quality stainless steels with box joints for additional durability. Hand finished to exacting standards by old world craftsmen. These pliers will not rust or peel. Can be sterilized or autoclaved. Developed to fill the many requests from research laboratories who need working tools that will withstand the rigors of decontamination. Will withstand all Ketones and industrial solvents.

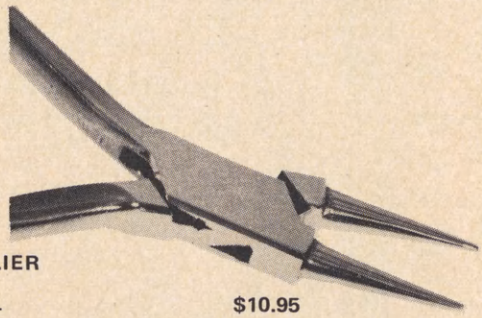
Mild acid solutions will not adversly affect the pliers. Standard models are shown, with many special shapes to choose from. Insulations and protective coatings are available upon request. Grips and springs are also available at **$1.50** per pair. All models are 5" long.
Quantity discounts available.

**CARBIDE TIPPED FLUSH CUTTER**
**150S-** **5 1/2"** OAL **$17.95**

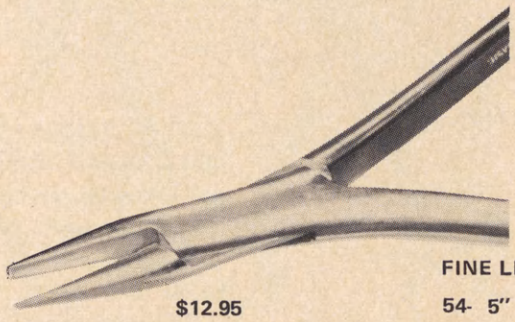


**$14.25**

**WIRING PLIERS**
**39-** **5 1/2"** O.A.L. has one pyramid. One conical beak.

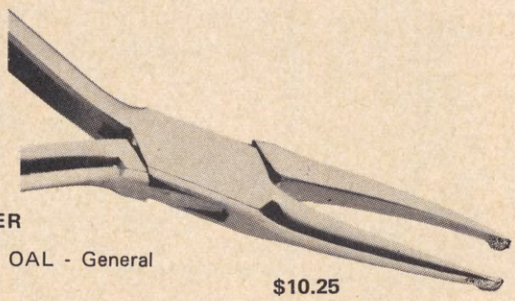


**ROUND NOSE PLIER**
**107-** **5 1/2"** OAL **$10.95**

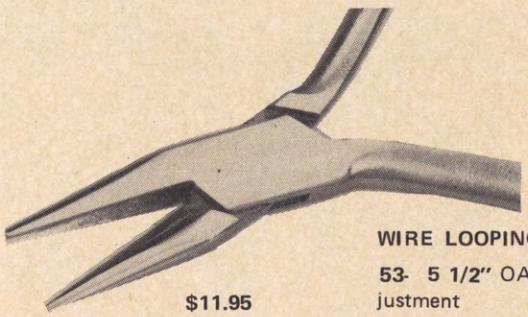


**$12.95**

**FINE LEAD FORMER**
**54-** **5"** OAL



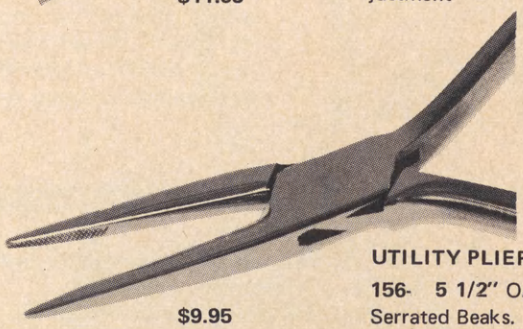
**UTILITY PLIER**
**110-** **5 1/2"** OAL - General wiring plier. **$10.25**



**$11.95**

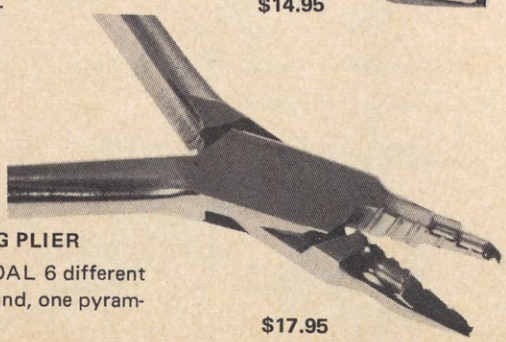
**WIRE LOOPING PLIER**
**53-** **5 1/2"** OAL For lead adjustment

**MODULE PULLER**
**101A-** **6"** OAL **$14.95**

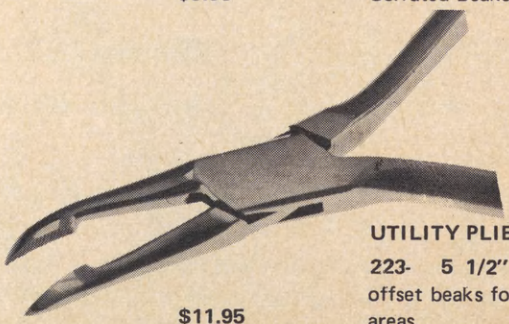


**$9.95**

**UTILITY PLIER**
**156-** **5 1/2"** OAL Smooth or Serrated Beaks.



**WIRE COILING PLIER**
**222-** **5 1/2"** OAL 6 different loops - one round, one pyramid beak. **$17.95**



**$11.95**

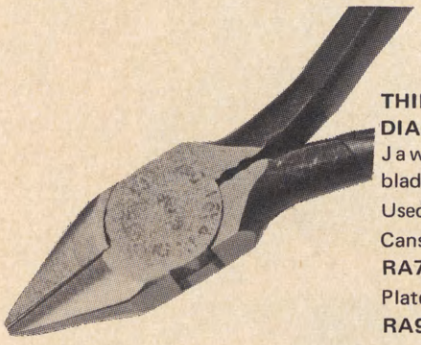
**UTILITY PLIER**
**223-** **5 1/2"** OAL. Serrated offset beaks for limited access areas.

# INDUSTRONIC PLIERS (MADE IN USA)

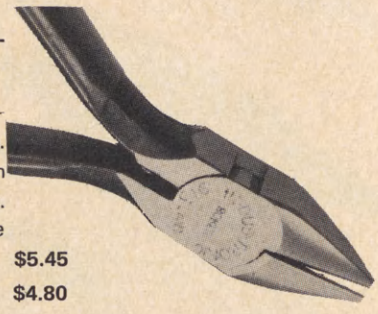
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

**INDUSTRONIC PLIERS** - made in U.S.A. to exacting standards. All pliers are Hot Drop - Forged from special analysis steels tailored to each individual end use. Models are available with milled or smooth jaws. Springs where listed. Special models for cutting of abrasive alloy, ribbons and wire. Listed are the most popular models - other standard and special shapes available. Cushion grip handles are available on all models at no extra charge.

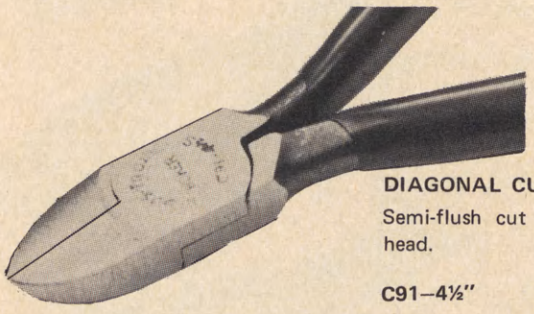
**DIAGONAL CUTTER**
Flush cut with polished head, and spring in handles.
**A9I - 4 1/2"** **$4.50**
**A7I - 5"** Nickel and Chrome Plated. **$5.10**



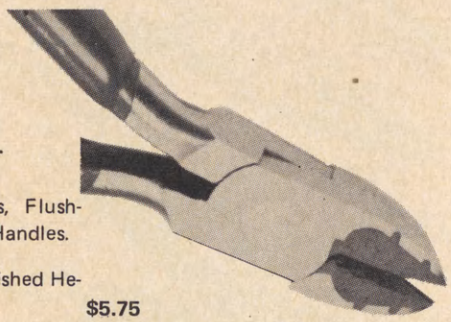
**THIN, NARROW POINTED, DIAGONAL CUTTER**
Jaws relief-ground back of blades to cut in confined areas. Used also for removal of I.C. Cans.
**RA71-4½"** Nickel and Chrome Plated. **$6.25**
**RA9I - 4 1/2"** Polished Head. **$5.25**



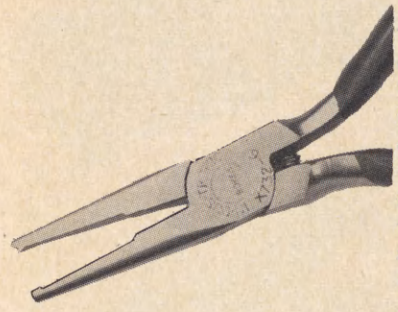
**NEEDLE POINT DIAGONAL CUTTER**
Spring in Handle.
Narrow, pointed nose, semi-flush edges for close cutting. Lightweight. Easy to use in electronics and light assembly.
**7I3-5 1/2"** Nickel and Chrome Plated. **$5.45**
**9I3-5 1/2"** Polished Head. **$4.80**



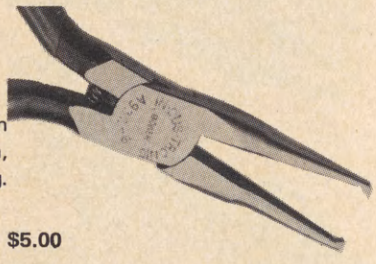
**DIAGONAL CUTTER**
Semi-flush cut with polished head.
**C91–4½"** **$4.25**



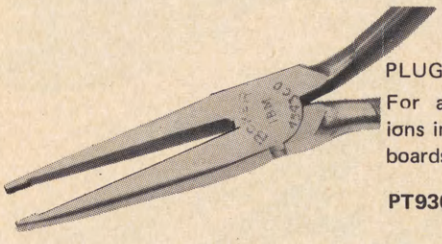
**MIDGET DIAGONAL CUTTER**
"Throat Hold" Jaws, Flush-Cutting, Spring in Handles.
**THC98I - 4 1/2"S** Polished Head. **$5.75**



**TRANSVERSE END CUTTING NIPPERS**
With extended tips, spring in handles. Automatically cuts consistent lengths of leads protruding through printed circuit board. Tips extend .062" beyond cutting edges, may be shortened to cut protruding length desired. Weight, 3 oz.
**X932–4½"** Polished head. **$5.00**

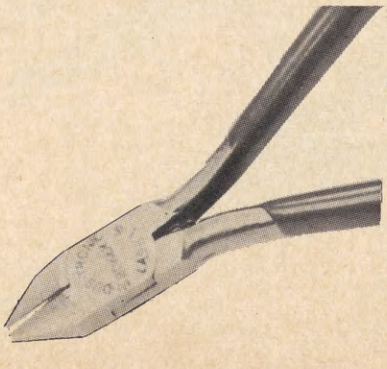


**TRANSVERSE FLUSH CUTTING NIPPERS**
With tapered jaws, spring in handles. Jaws taper to a thin, narrow nose. Flush–cutting. For light duty cutting.
**A932-4½"** Polished head. **$5.00**



PLUGGING PLIER
For adjusting wrap connections in data-processing control boards.
**PT930 - 7"** Polished Head **$5.45**

**MIDGET ELECTRONIC END CUTTING NIPPERS**
Flush-cutting blades, with extremely fine points, set at 22½° angle. For very fine subminiature work.
**XA482 - 4½"** Fully Polished **$7.20**
**XA782 - 4½"S** Nickel and Chrome Plated. Coil Spring. **$6.25**
**XA982 - 4½"** Polished Head. Coil Spring. **$5.50**



**MIDGET DIAGONAL CUTTER**
Standard handles lengthened with lightweight tubular extensions to reach into deep areas and to reduce hand Fatigue. 8" O.A.L. Coil spring.
**L781S** Nickel and Chrome Plated. **$7.10**
**LA981S** Polished Head. Very Fine Flush Cut Tapered Jaws. **$7.25**

# INDUSTRONIC PLIERS (MADE IN USA)

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 100 + Ask for Quotations

### JEWELER'S PRECISION PLIERS

Matched in size and shape to fit the hand with a snug feel. These small precision pliers are hot-drop forged from special analysis alloy steel, accurately machined and fitted, properly heat-treated, and tested to exacting specifications. Widely used in electronics and communications, jewelry, instruments, laboratory work, and model making.

### JEWELER'S PRECISION PLIERS CASE ASSORTMENTS

Case with protective lining holds five assorted jeweler's pliers. Keeps precision tools handy and safe from damage. For hobbyist, mechanic & technicians.

**C75** Contains one each: 781 - 4 1/2", 782 - 4 1/2", 783 - 4 1/2", 784 - 4 1/2", 785 - 4 1/2" **$20.50**

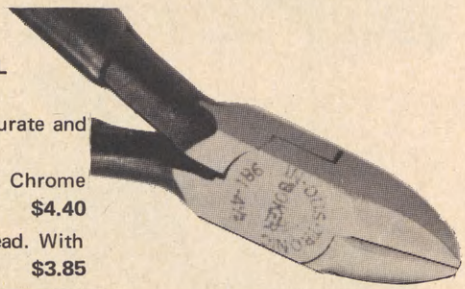
**C95** Contains one each: 981 - 4 1/2", 982 - 4 1/2", 983 - 4 1/2", 984 - 4 1/2", 985 - 4 1/2" **$17.95**

### MIDGET DIAGONAL CUTTER

Semi-flush edges accurate and close cutting.

**781-4½"** Nickel and Chrome Plated. With spring. **$4.40**

**981-4½"** Polished Head. With spring. **$3.85**



### MIDGET NEEDLE NOSE

Smooth Jaws

Slender jaws taper to a needle point.

**783-4½"** Nickel and Chrome Plated. **$4.10**

**983 - 4 1/2"** Polished Head. With spring. **$3.60**

### MIDGET END CUTTING NIPPERS

High leverage, semi-flush cutting.

**782-4½"** Nickel and Chrome Plated. **$4.85**

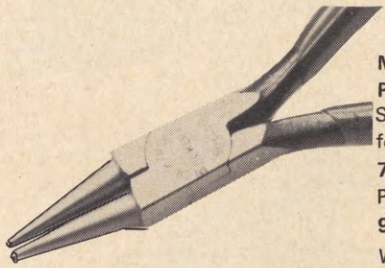
**982 - 4 1/2"** Polished Head **$4.00**

### MIDGET ROUND NOSE PLIERS

Smooth tapered, round jaws, form accurate loops.

**785-4½"** Nickel and Chrome Plated. With spring. **$4.45**

**985 - 4 1/2"** Polished Head. With spring. **$3:75**



### CUTTERS

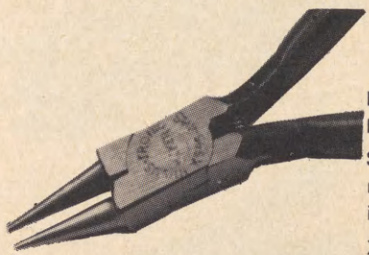
"W" notches slit fine gauge insulations. Hole in blades strips heavier insulations. Grooves inside handles crush insulation. Weight, 5½ oz.

**917– 6"** Polished head. **$5.00**

### MIDGET ROUND NOSE PLIERS EXTRA SMALL

Smooth jaws longer and slimmer than 985 - 4 1/2". Spring in Handles

**X985 - 4 1/2"S** Polished Head. **$5.75**

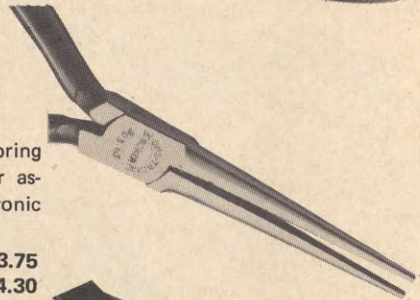


### LONG, EXTRA FINE, NEEDLE NOSE PLIERS

Long, very slim and spring tempered milled jaws for assembling miniature electronic parts. Weight, 3 oz.

**903–6"** Polished head. **$3.75**

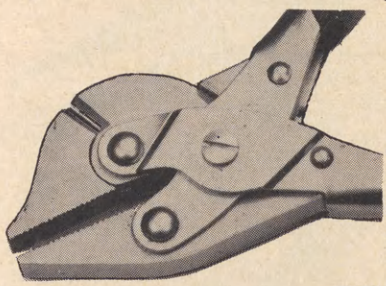
**X903-5½** Miniature **$4.30**



### PARALLEL ACTION PLIERS

Compound action adds powerful leverage to jaws. Milled gripping jaws are parallel at every position.

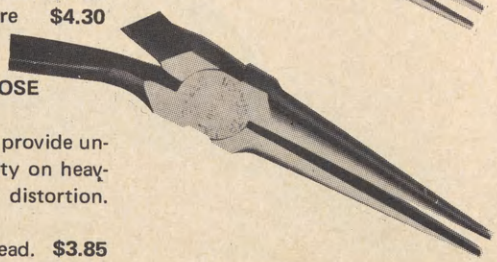
**P843 - 4 1/2"** Nickel Plated **$5.50**



### LONG NEEDLE NOSE PLIERS

Sturdy milled jaws provide unusual gripping ability on heavier work without distortion. Weight, 5 oz.

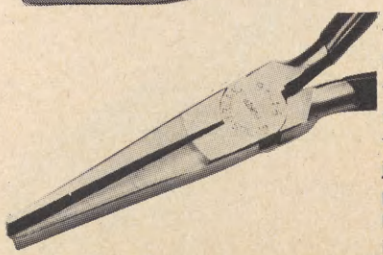
**933–6"** Polished head. **$3.85**



### THIN, FLAT JAW PLIERS

Milled jaws, polished to very thin edges, reach into tight places and grip. Used on knitting machines, radiator cores, jewelry, telephone work, and press operations.

**R940-6"** Polished Head. Cushion Grip Handles. **$4.75**

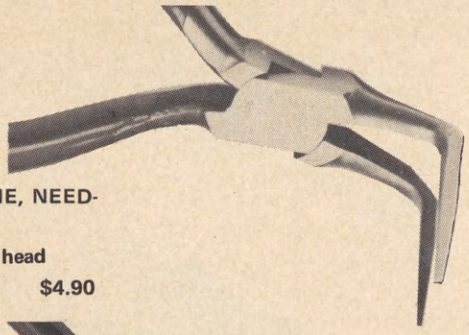




ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

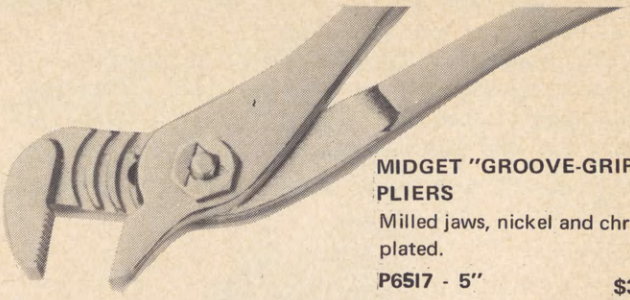
# INDUSTRONIC PLIERS (MADE IN USA)

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 100 + Ask for Quotations



**BENT, EXTRA FINE, NEEDLE NOSE PLIERS**

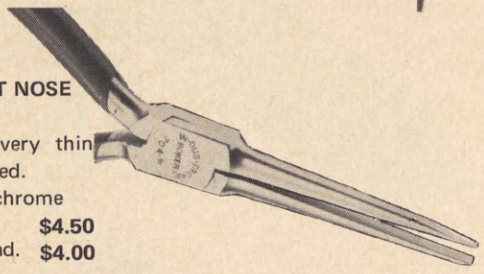
**B708 -6" Polished head** **$4.90**



**MIDGET "GROOVE-GRIP" PLIERS**

Milled jaws, nickel and chrome plated.

**P65I7 - 5"** **$3.25**

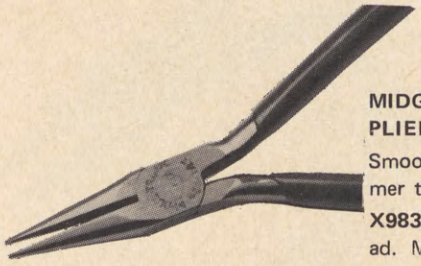


**EXTRA FINE, FLAT NOSE PLIERS**

Smooth, flat, and very thin jaws. Spring–tempered.

**704–6"** Nickel and chrome plated. **$4.50**

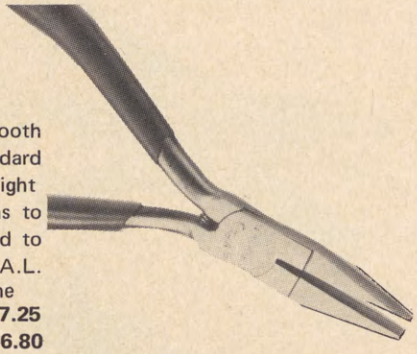
**904–6"** Polished head. **$4.00**



**MIDGET NEEDLE NOSE PLIERS**

Smooth jaws longer and slimmer than 983 - 4 I/2"

**X983 - 4 I/2"SM** Polished Head. Milled Jaws. Coil Spring. **$4.10**



**MIDGET FLAT NOSE PLIERS**

Extended handles, smooth jaws and coil spring standard handles lengthened with light weight tubular extensions to reach into deep areas and to reduce hand fatigue. 8" O.A.L.

**L784–S** Nickel and chrome plated. **$7.25**

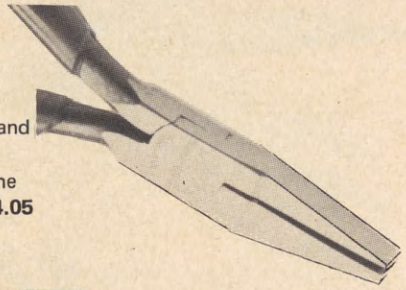
**L984–S** Polished head. **$6.80**

**MIDGET NEEDLE NOSE PLIERS**

Coil spring and smooth jaws. Standard handles lengthened with lightweight tubular extensions to reach into deep areas and to reduce hand fatigue. Overal length-8".

**L783S** Nickel and Chrome Plated. **$7.20**

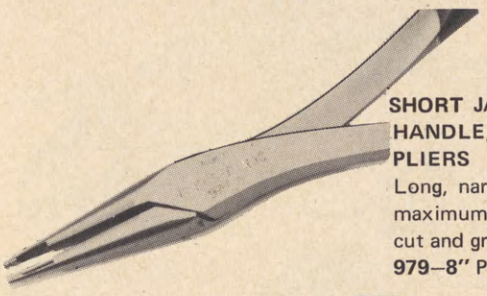
**L983S** Polished Head. **$6.75**



**MIDGET FLAT NOSE PLIERS**

Milled smooth jaws, flat and wide for stronger gripping.

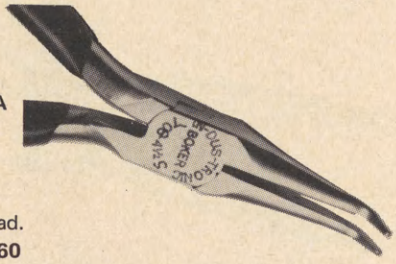
**784–4½"** Nickel and chrome plated. **$4.05**



**SHORT JAW, LONG HANDLE, NOSE CUTTING PLIERS**

Long, narrow handles provide maximum reach. Slender jaws cut and grip at tips.

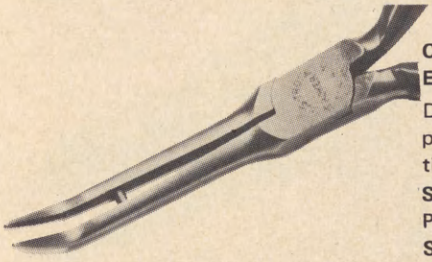
**979–8"** Polished head. **$5.40**



**CURVED, SHORT, EXTRA FINE, NEEDLE NOSE PLIERS**

Smooth jaws.

**908 - 4 I/2"S** Polished Head. Coil spring **$4.60**

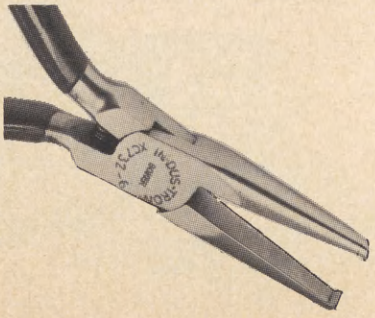


**CURVED, EXTRA FINE, NEEDLE NOSE PLIERS**

Dowel pin in jaw keeps tips in perfect alignment. Stabilized tips & milled jaws.

**ST708-6"** Nickel and Chrome Plated. **$5.60**

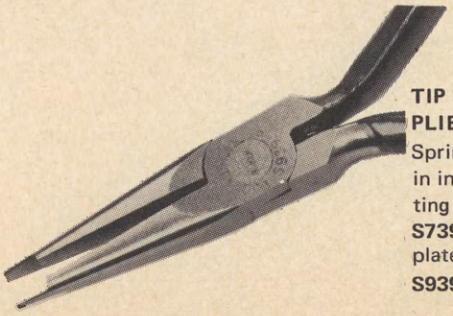
**ST908 - 6"** Polished Head. **$5.25**



**OPEN THROAT, FLUSH CUTTING TRANSVERSE NIPPERS**

Spring in handles. Similar to 932–6" except that throat is open entire length of jaws from blades to box. Flush cutting. Weight, 5 oz.

**XC932–6"** Polished head. **$5.00**



**TIP NOSE, SIDE CUTTING PLIERS**

Spring in handles. Cuts at tips in inaccessible areas. Flush cutting edges leave no wire stub.

**S739–4½"** Nickel and chrome plated. **$5.60**

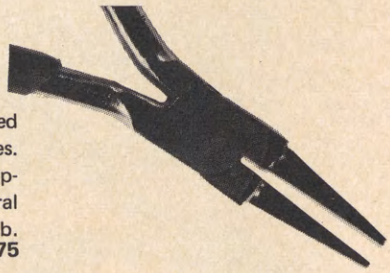
**S939–4½"** Polished head. **$5.30**

# UTICA PLIERS (MADE IN USA)

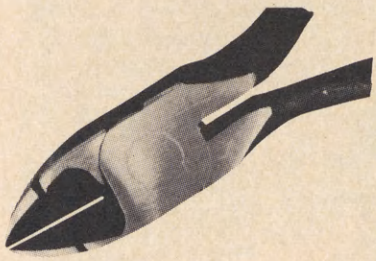
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

UTICA - Especially designed for electronic assembly and maintenance. Made from hot-forged special analysis steel, these pliers feature electronically induction hardened jaws and joints. Jaws and hand honed to exacting standards. All pliers supplied with springs and cushioned grips. Bending pliers are available with smooth or serrated jaws in addition to radius edges. Other models available.

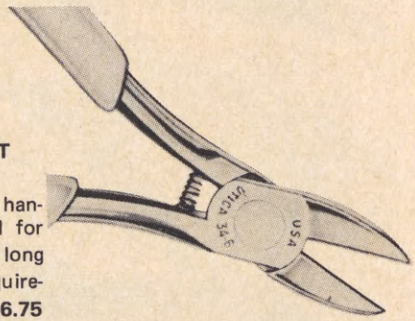
Modified models and large quotations receive special consideration.



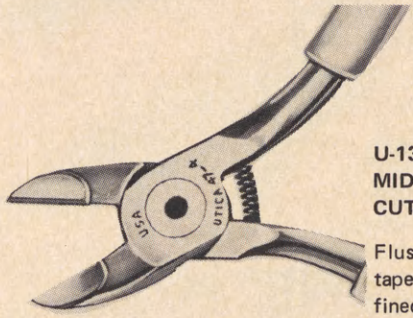
**U-16611**
**ROUND NOSE PLIERS**
Plain jaws standard. Scored jaws standard on larger sizes. Used by radio repairmen, opticians and jewelers. Federal Specifications GGG-P-00471b.
**$3.75**



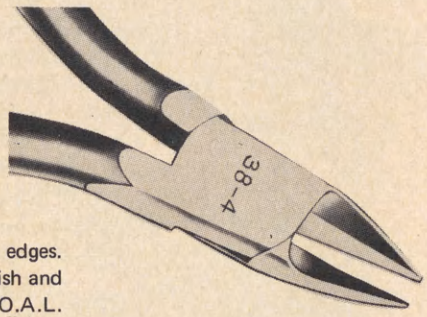
**U-13425**
**DIAGONAL CUTTER**
.052" diameter wire stripping hole in blade, sleeve grooves or wire twisters. With W-shaped stripping notches on back of head. Federal Specifications GGG-P-00471b. **$5.85**



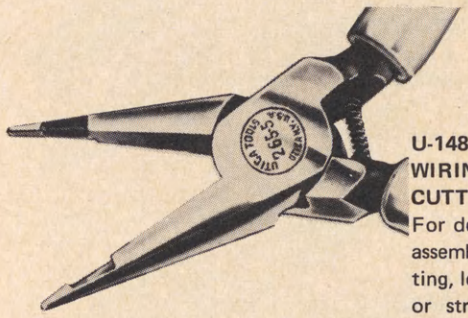
**U-13246**
**LONG HANDLE MIDGET DIAGONAL**
Thin narrow nose and 6" handle make this plier ideal for inaccessable areas where long reach and snap cut are required. 6" O.A.L. **$6.75**



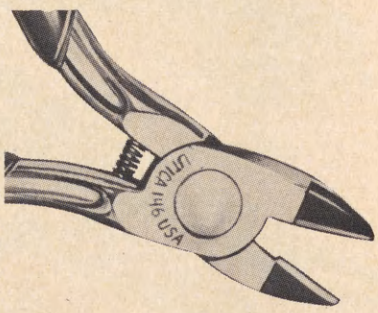
**U-13234-22**
**MIDGET DIAGONAL CUTTER**
Flush Cut Jaws and delicately tapered nose for work in confined areas. 4" O.A.L.
**$5.00**



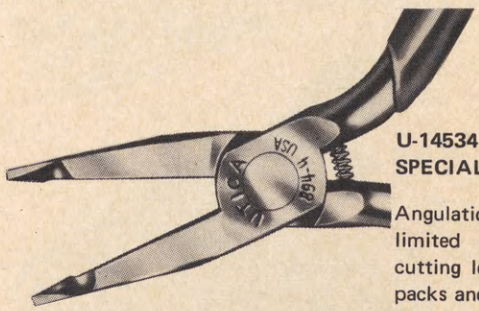
**U—13224—22**
**MIDGET DIAGONAL PLIERS**
Hand honed semi—flush edges. cushion handles full polish and coil spring standard. 4" O.A.L.
**$6.00**



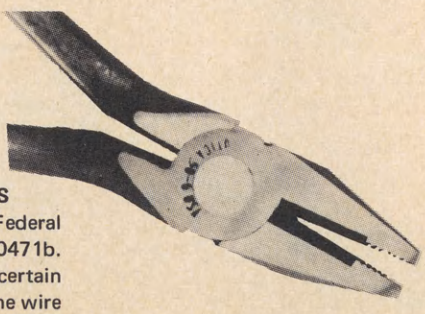
**U-14855**
**WIRING PLIER WITH CUTTER**
For delicate and intricate subassembly work. Used for cutting, looping and twisting solid or stranded wire. 5" O.A.L.
**$5.35**



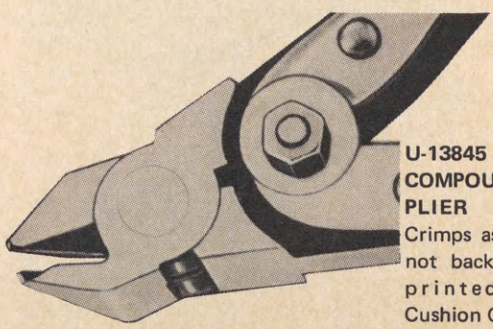
**U-13164**
**SPECIAL DIAGONAL CUTTER**
**CARBIDE EDGES**
A miniature size wire cutter designed for the electronic field. Will cut half hard nickel wire. Available flush or bevel cut. Specify Flush or Bevel. 4" O.A.L. **$19.50**



**U-14534**
**SPECIAL BLADE TIP**
Angulation allow access into limited areas. Excellent for cutting leads from under flatpacks and I.C.'s. **$4.80**



**U-14616**
**SIDE CUTTING PLIERS**
Standard electrical use. Federal Specifications GGG-P-00471b. Specially designed for certain applications handling fine wire
**$3.75**



**U-13845**
**COMPOUND ACTION P.C. PLIER**
Crimps as it cuts so wire will not back through hold of a printed circuit board. Not Cushion Grip. 5" O.A.L.
**$5.50**

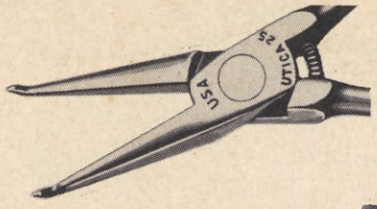


ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

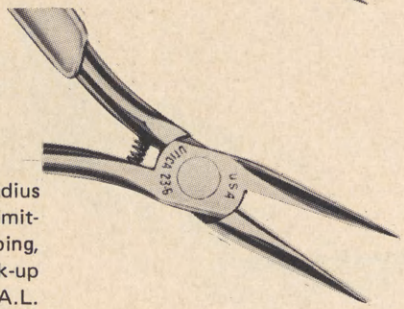
# UTICA PLIERS (MADE IN USA)

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 100 + Ask for Quotations

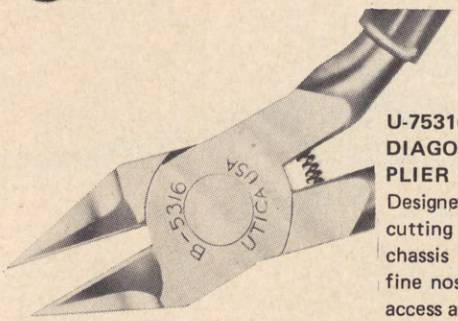
**U–75317**
**THIN CHAIN NOSE**
Designed for subminiature work. Smooth jaws and radius edges for no mar bending. 5" O.A.L. **$4.00**



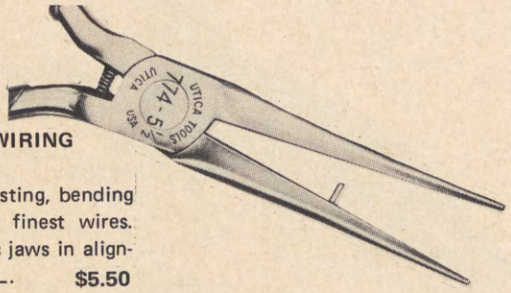

**U-16135-43**
**BENT CHAIN NOSE PLIER**
A 60° angle bend simplifies gripping, twisting and looping of very fine wires. 5" O.A.L. **$6.25**



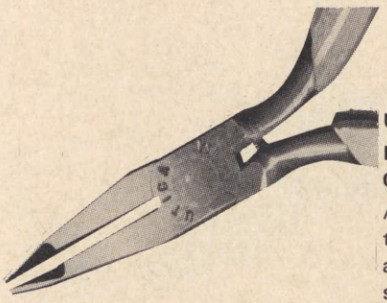

**U-16126-43**
**SHORT CHAIN NOSE**
Long handles (6") and radius edged jaws permit use in limited access areas. For looping, twisting, bending and pick-up of ultra-fine wires. 6" O.A.L. **$5.50**



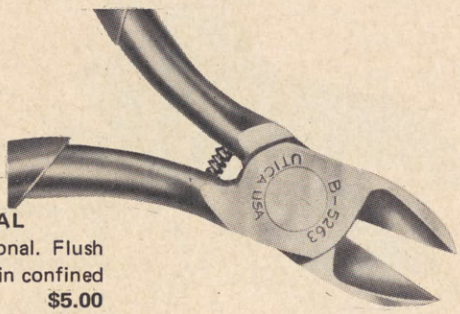

**U-75316**
**DIAGONAL CUTTING PLIER**
Designed specifically for close cutting on circuit boards or chassis assembling with very fine nose undercut for limited access areas. 4" O.A.L. **$6.00**



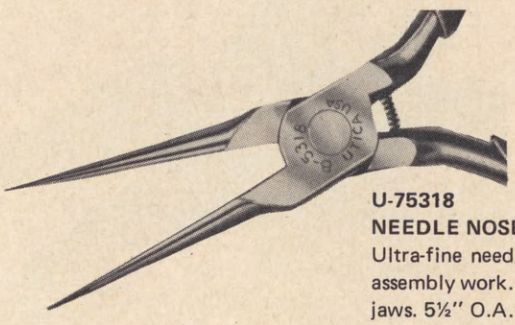

**U-16585-43**
**PICK-UP AND WIRING PLIER**
For looping, twisting, bending and pick-up of finest wires. Dowel pin holds jaws in alignment. 5½" O.A.L. **$5.50**



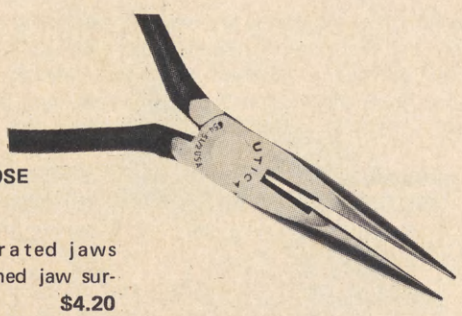
**U - I4544**
**ELECTRONIC DYKE-TIP CUTTER**
A tapered, 32° angle flush cutting edge, completely polished and designed to snap-cut fine solid or stranded wire. **$5.80**



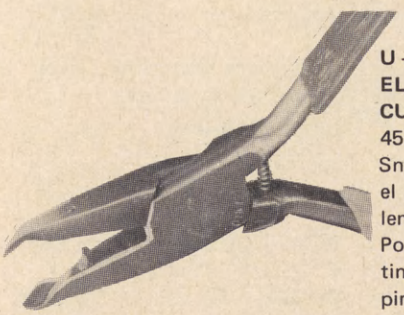

**U-75263**
**MIDGET DIAGONAL**
Narrow Nose Diagonal. Flush Cut Jaws for work in confined areas. **$5.00**



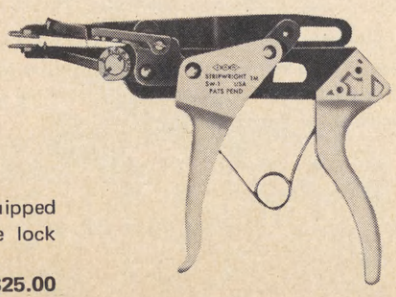

**U-75318**
**NEEDLE NOSE PLIERS**
Ultra-fine needle nose for fine assembly work. Smooth, radius jaws. 5½" O.A.L. **$5.00**



**U - I4215 - 22**
**LONG CHAIN NOSE SIDE CUTTER**
Full polished serrated jaws with extra hardened jaw surfaces and cutters. **$4.20**



**U - 15165 - 00**
**ELECTRICIAN DIAGONAL CUTTING PLIER**
45° flush cut cutting edge. Snap–cut nickel ribbon, nickel and copper wire the full length of the cutting surface. Positive alignment on the cutting edges guided by aligning pin. Fully polished. **$5.70**



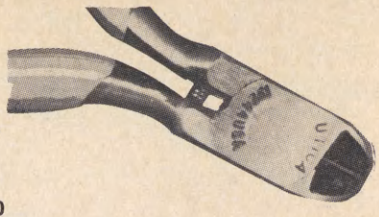
**U - I8802**
**STRIPWRIGHT WIRE STRIPPERS**
STRIPWRIGHT is equipped with adjustable positive lock for desired wire gauge. **$25.00**

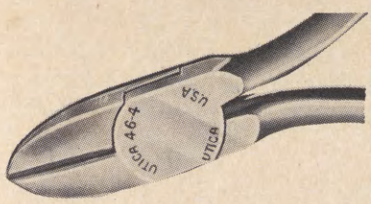
**U-16388**
**FLAT NOSE WIRING PLIERS**
Used in typewriter repair and assembly work. Federal Specifications GGG-P-00471b. **$3.70**

# UTICA PLIERS (MADE IN USA)

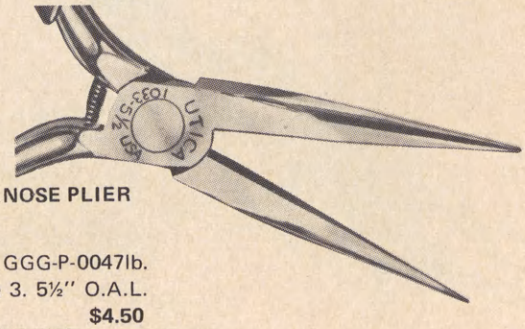
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

**U - I3244**
**SNUB NOSE MIDGET DIAGONAL CUTTER**
For work in confined areas, it will snap-cut fine solid or stranded wire, with flush cutting edge. Fully polished.
**$4.70**

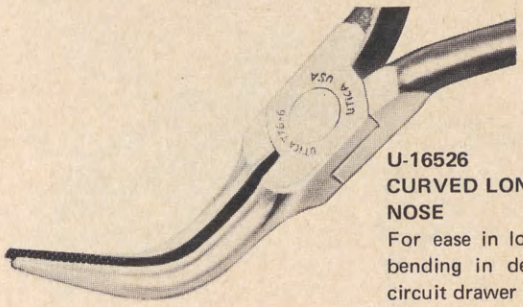




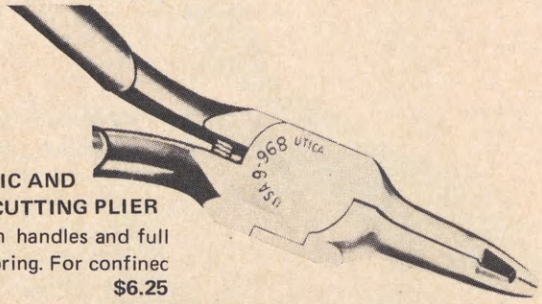
**U-13214-22**
**MIDGET DIAGONAL**
Thin narrow nose for work in confined area. Federal Spec. #GGG-P-0047lb. Type IV Class 1, Style B. 4" O.A.L. **$4.75**



**U-16215-58**
**LONG CHAIN NOSE PLIER**
Federal Spec. GGG-P-0047lb. Type XI, Style 3. 5½" O.A.L.
**$4.50**

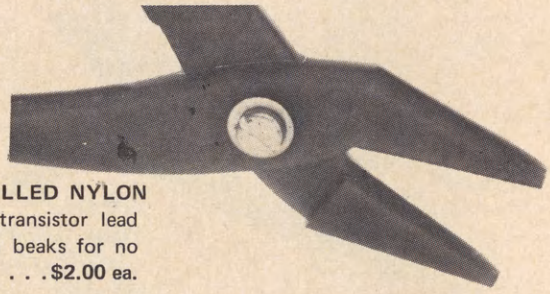


**U-16526**
**CURVED LONG NEEDLE NOSE**
For ease in looping, twisting, bending in deep chassis and circuit drawer areas. **$4.10**

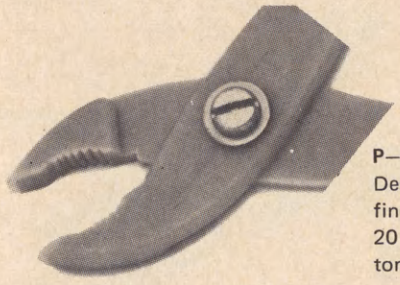


**U-14536-22**
**ELECTRONIC AND IGNITION CUTTING PLIER**
With cushion handles and full polish and spring. For confinec areas. **$6.25**

**141**
**SPECIAL DIAGONAL CUTTER**
Short and Flush Cut Jaws for use in limited access areas. 5" O.A.L. **$4.50**

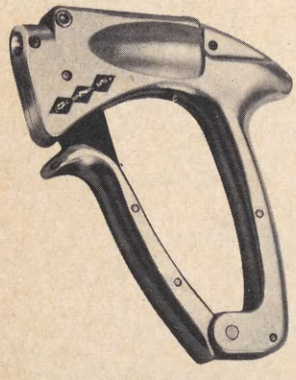


**P–1 GLASS FILLED NYLON**
Designed as a transistor lead bender, smooth beaks for no nick bends . . . . . **$2.00 ea.**



**P–2 GLASS FILLED DELRIN**
Designed to pull fuses. It has fine serrated points. Will lift 20 lbs. and is resistant to acetone alcohol, etc.. . . **$1.80 ea.**

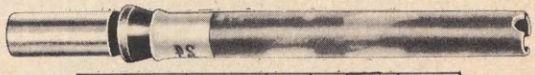
Hand Operated tool for solderless wrapped wire connections. Bits and sleeves are required.
A light, hand operated tool suitable for either production line or field work. Housing is aluminum with nickel-chrome finish.



**RAPID-WRAPIT TOOLS**
Wire Gauge 26, 24, and 22

TOOL w/COLLET CHUCK, BIT & SLEEVE
**RW-200** . . . . . **$70.00**
SLEEVES
**RS-224** . . . . . **$16.00**
**RS-244** . . . . . **19.00**
**RS-264** . . . . . **24.00**
BITS
**RB-221** . . . . . **$26.00**
**RB-241** . . . . . **26.00**
**RB-261** . . . . . **24.00**

**SLEEVES** Different sleeves are required depending on the size of the wire and the terminal. Rapid-Wrapit sleeves are insulated and minimize shorting to adjacent terminals. There is, however, no insulation from the terminal and the connections being wrapped. See tables below for selection of proper sleeve size.



| Wire Gauge No. | Bit Part No. | Bore X | Bore Y | Z | A | Wire Gauge No. | Sleeve Part No. |
|---|---|---|---|---|---|---|---|
| 26 | RB 261 | .075 | .800 | 2" | .162 | 26 | RS 264 |
| 24 | RB 241 | .075 | .800 | 2" | .162 | 24 | RS 244 |
| 22 | RB 221 | .087 | .800 | 1¼" | .190 | 22 | RS 224 |

**BITS** Different bits are required depending on the size of the wire, the size of the terminal and height on the terminal at which the connection is to be made. Wire and terminal specifications for bits are set forth in the tables below.

| Wire Gauge Size | Sleeve Part Number | Bit Part Number | Bore Size Dia. of Bit | TERMINAL SPECIFICATIONS "Vee" Max. A | "Vee" Min. B | Rectangular Rec. X | Rec. Y | Max. X | Max. Y | Max. Z | Min. X | Min. Y | Square Rec. C | Square Max. C | Square Min. C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | RS 264 | RB 261 | .075 | .070 | .010 | .062 | .031 | .062 | .040 | .070 | .040 | .012 | .045 | .045 | .030 |
| 24 | RS 244 | RB 241 | .075 | .070 | .010 | .062 | .031 | .062 | .040 | .070 | .040 | .012 | .045 | .045 | .030 |
| 22 | RS 224 | RB 221 | .087 | .082 | .012 | .062 | .031 | .062 | .058 | .082 | .062 | .015 | .045 | .058 | .035 |

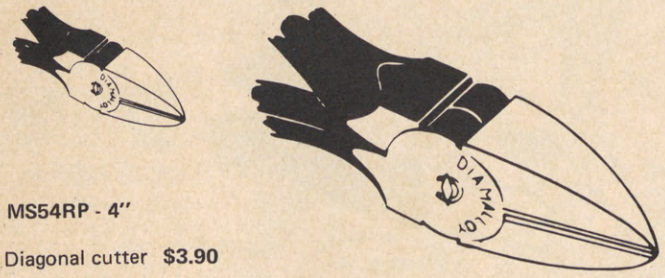


ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# DIAMALLOY PLIERS WITH 'COPALOY' JOINT (USA)

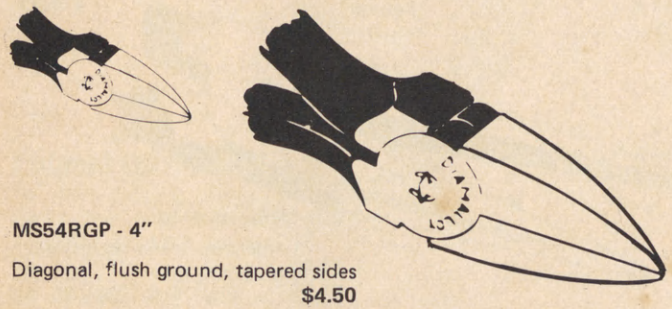
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

Here are catalog numbers, dimensions and descriptions of the outstanding items of the Diamond Line of Electronic Pliers. Beautifully finished precision tools for exacting, long time use, forged of special analysis Diamalloy steel. Designed to meet industrial users requirements. Electronically hardened and hand honed cutting edges stay sharp longer. Firm joints are exactingly fitted to resist wear. Available with or without coil springs or plastic cushion grip handle.



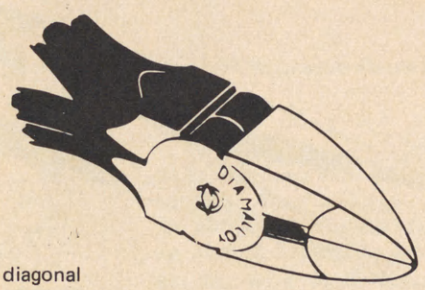
**MS54RP - 4"**

Diagonal cutter **$3.90**



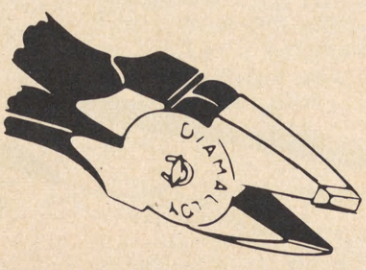
**MS54RGP - 4"**

Diagonal, flush ground, tapered sides **$4.50**



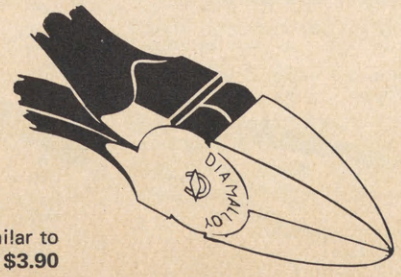
**MS54-4RP - 4"**

Carbide blade flush cut diagonal **$17.00**



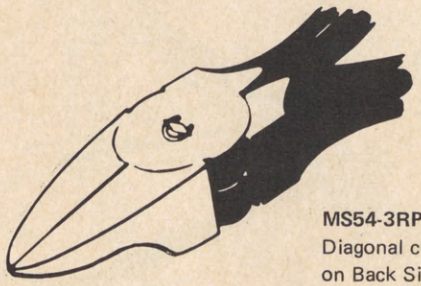
**MS54-2RP - 4"**

**CARBIDE BLADE SHEAR CUT** — Leaves predetermined lead length .040" standard. Other lengths available. **$9.50**



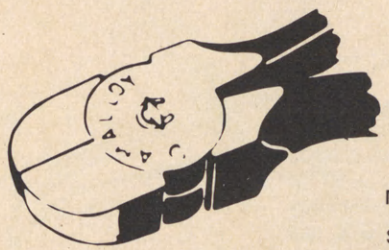
**MS54-7RP - 4"**

Diagonal, flush ground. Similar to **MS54-RGP** **$3.90**



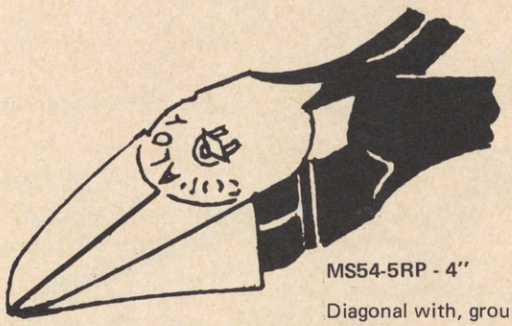
**MS54-3RP - 4"**

Diagonal cutter, that is ground down on Back Side **$4.90**



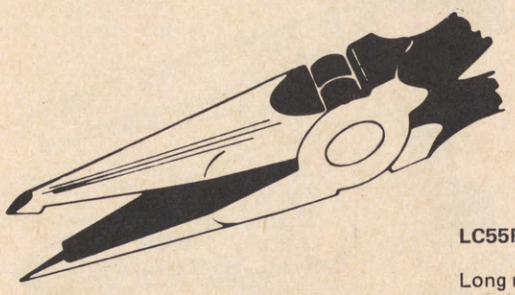
**MS54-6RP - 4"**

Short nose flush cut diagonal **$4.90**



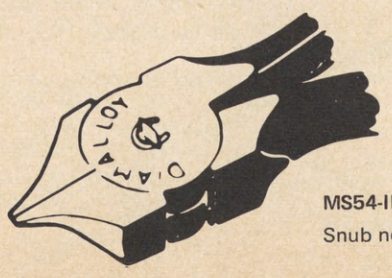
**MS54-5RP - 4"**

Diagonal with, ground (straight sides) **$4.90**



**LC55RP - 5"**

Long nose end cutter. **$6.20**

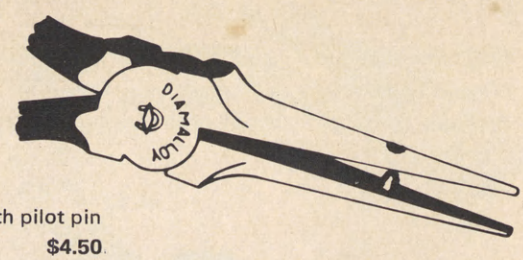


**MS54-IRP - 4"**

Snub nose diagonal, with narrow tips **$5.80**

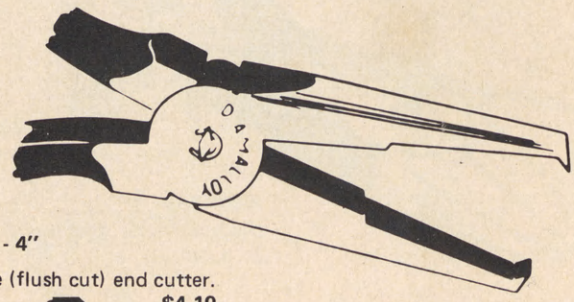
# DIAMALLOY PLIERS WITH 'COPALOY' JOINT (USA)

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations



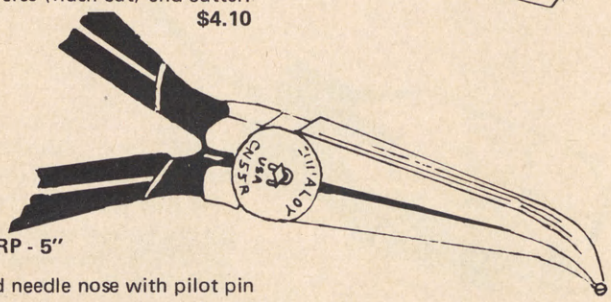
**NN55RP - 5"**
Needle nose with pilot pin
**$4.50**

**GA54RP - 4"**
Angle cutter, clush cut
**$6.60**

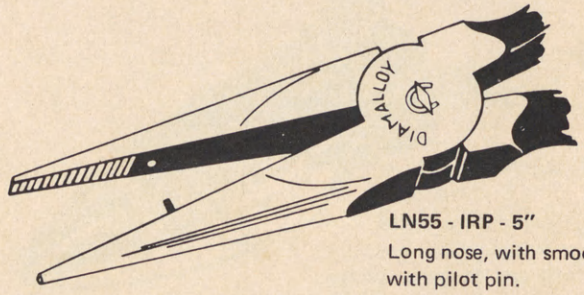


**EC54FRP - 4"**
Transverse (flush cut) end cutter.
**$4.10**

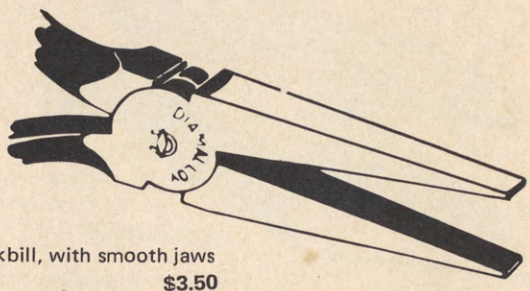
**GA54-4RP - 4"**
Carbide blade angle cutter
**$18.95**



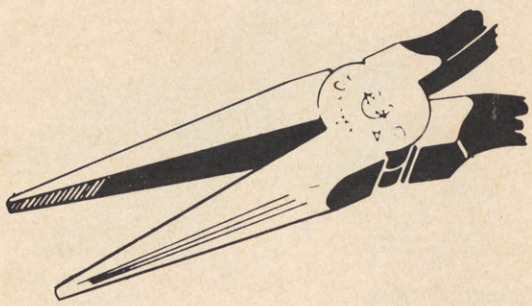
**CN55RP - 5"**
Curved needle nose with pilot pin
**$4.20**



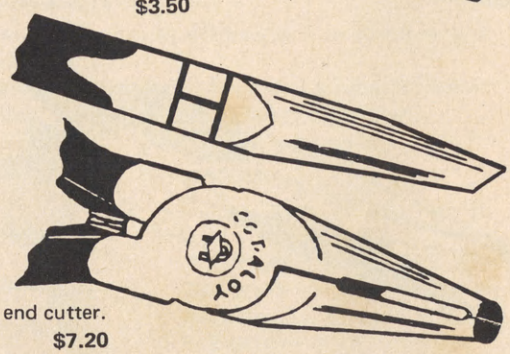
**LN55 - IRP - 5"**
Long nose, with smooth jaws with pilot pin. **$4.70**



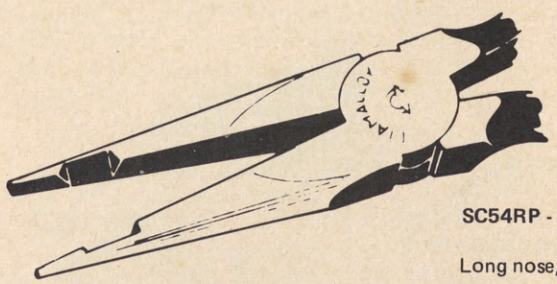
**DN54RP - 4"**
Flat nose duckbill, with smooth jaws
**$3.50**



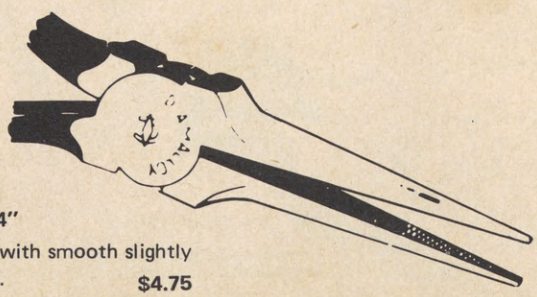
**LN54RP - 4"**
Long nose
**$3.50**



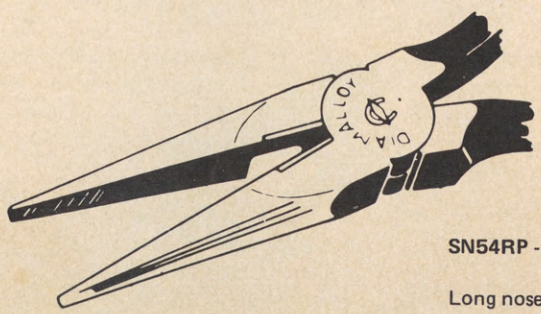
**LC55-IRP - 5"**
Short nose angle end cutter.
**$7.20**



**SC54RP - 4"**
Long nose, tip cutter.
**$4.10**



**NN54-I RP - 4"**
Needle nose, with smooth slightly rounded jaws. **$4.75**



**SN54RP - 4"**
Long nose, side cutter.
**$4.00**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# LINDSTROM PLIERS - SWEDISH STEEL

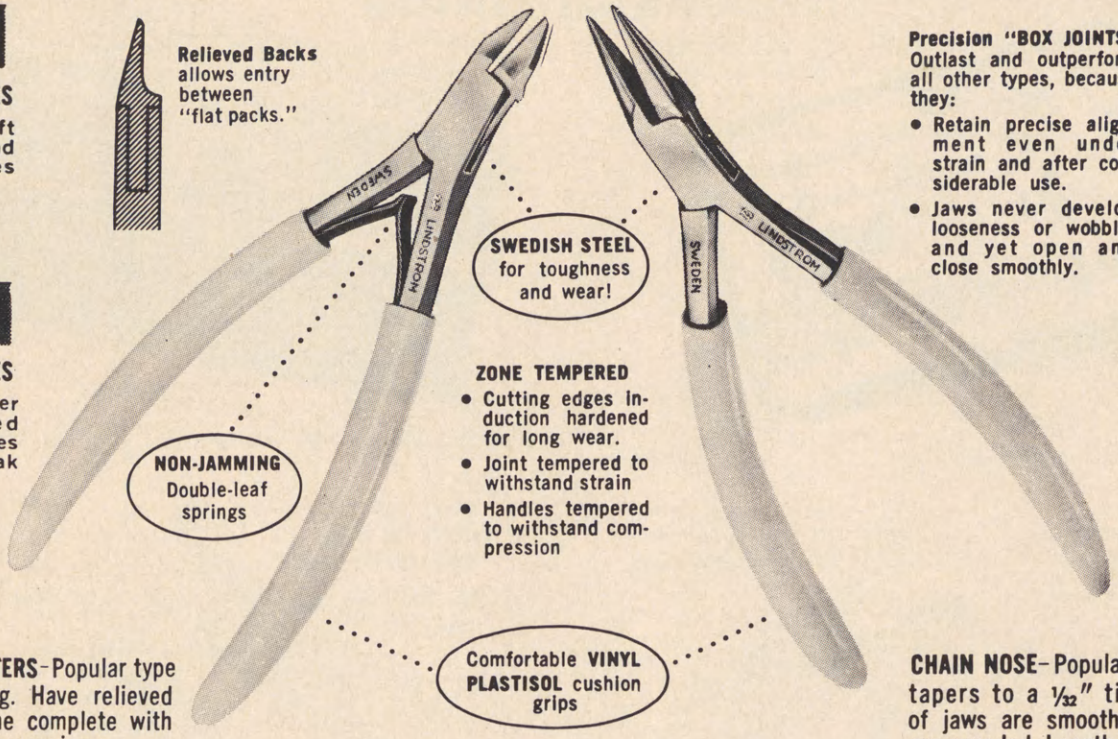
QUANTITY DISCOUNTS: 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

**FULL-FLUSH EDGES**
For cutting soft wires straight and flush . . . leaves no wire peak

**SEMI-FLUSH EDGES**
For cutting copper and insulated wires . . . leaves a very small peak



**Relieved Backs** allows entry between "flat packs."

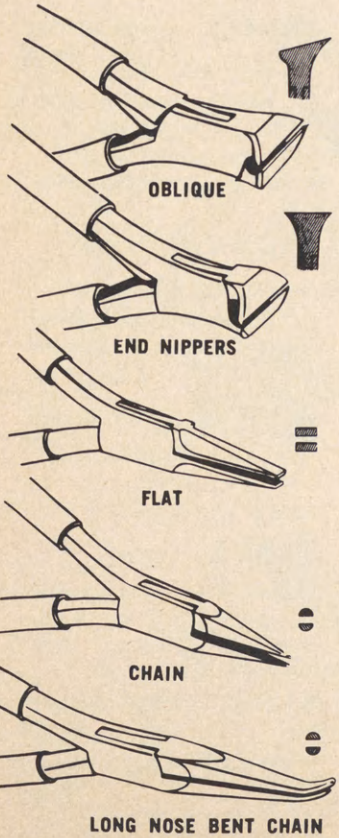

SWEDISH STEEL for toughness and wear!
ZONE TEMPERED
• Cutting edges induction hardened for long wear.
• Joint tempered to withstand strain
• Handles tempered to withstand compression
NON-JAMMING Double-leaf springs
Comfortable VINYL PLASTISOL cushion grips

**Precision "BOX JOINTS"** Outlast and outperform all other types, because they:
- Retain precise alignment even under strain and after considerable use.
- Jaws never develop looseness or wobble, and yet open and close smoothly.

**DIAGONAL CUTTERS**–Popular type for side cutting. Have relieved backs, and come complete with double-leaf return springs.
**No. 36-237S**—semi flush ... **$7.65**
**No. 36-238S**—full flush ..... **$7.95**

**CHAIN NOSE**–Popular snipe nose tapers to a 1/32" tip—Insides of jaws are smooth, and edges are rounded. Length of jaws 3/4".
**No. 36-226** ..... **$5.50**

***All Supreme Tools are Approximately 4 1/2" Long.***




## *Supreme* NIPPERS

All Nippers have vinyl plastisol handles and double-leaf return springs.

**OBLIQUE** — Head is angled 15°, with tip coming to a point.
**No. 36-234S** semi-flush edges ..... **$7.25**
**No. 36-235S** full flush edges ..... **$7.65**

**OBLIQUE WITH SHORT HEAD** — Similar to above except back edge is ground off so head can be fitted into inaccessable areas.
**No. 36-242S** full flush edges ..... **$7.65**

**END NIPPERS** — Jaws are set straight across with both ends coming to a point. **No. 36-231S** semi-flush edges ..... **$7.25**
**No. 36-232S** full flush edges ..... **$7.65**

**END WITH NARROW HEAD** — Head is only 1/8" wide at cutting edge.
**No. 36-246S** flush edges ..... **$7.65**

## *Supreme* PLIERS

All pliers have vinyl Plastisol handles. Double-leaf return springs available at **25¢** per pair.

**FLAT** — 1/8" wide at tip. Insides of jaws are smooth and edges are rounded. Length of jaws 3/4". **No. 36-221** ..... **$5.50**

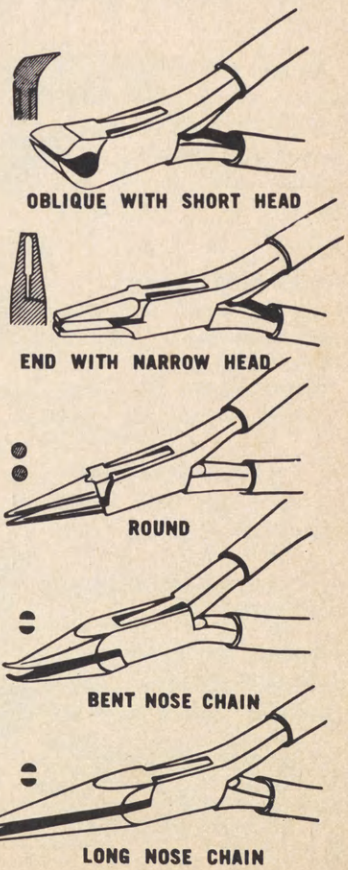
**ROUND** — Jaws are smooth and taper to a 1/32" tip. Insides of jaws are smooth and edges are rounded. Length of jaws 3/4". **No. 36-224** ..... **$5.85**

**CHAIN** — Popular snipe nose tapers to a 1/32" diameter at the tip. Length of jaws 3/4". **No. 36-226** ..... **$5.50**

**BENT NOSE CHAIN** — Tips are angled at 45° for picking up and manipulating precision wires. Length of jaws 3/4". **No. 36-227** ..... **$6.25**

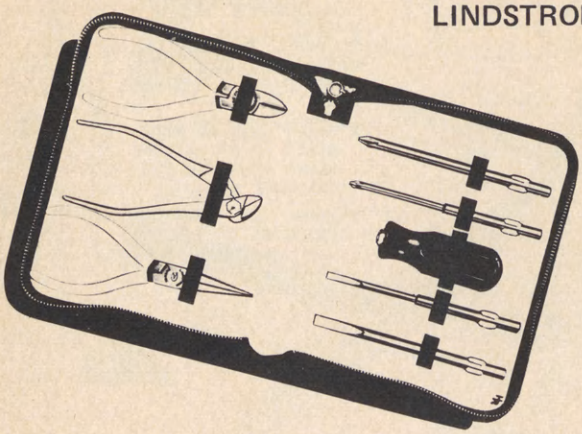
**LONG NOSE BENT CHAIN** — Tips are angled at 60° for picking up and manipulating precision wires. Length of jaws 1 1/4". **No. 36-229** ..... **$6.60**

**LONG NOSE CHAIN** — Extra length jaws for getting into tight places. Snipe nose tapers to 1/32". Length of jaws 1 1/4". **No. 36-228** ..... **$5.85**



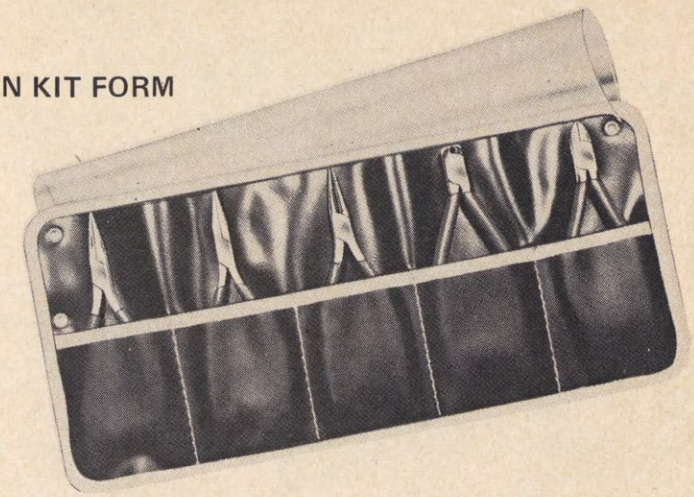
# LINDSTROM PLIERS - SWEDISH STEEL

## LINDSTROM PLIERS IN KIT FORM



**36-303** 8 piece kit in deluxe zipper case . . . . . **$20.50**

5" Diagonal Nippers
5½" Long Nose Chain Pliers
5" Multi-Grip Plier
Interchangeable Handle
2 Slotter Screwdrivers
2 Phillips Screwdrivers

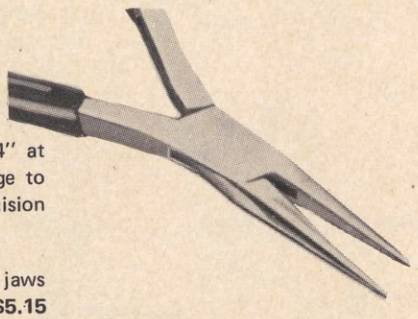


**36 - 302** Includes the five basic pliers for all miniature work

4 1/2" Chain Nose
4 1/2" Flat Nose
4 1/2" Round Nose
4 1/2" Diagonal Nipper
4" End Nipper
**$18.50**

**36 - 305** Same pliers, but in zipper case of black imitation leather, lined with velvet like material. **$23.50**

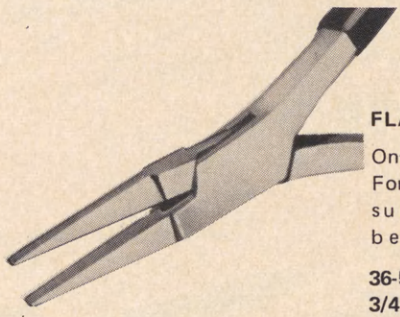
### CHAIN NOSE



Snipe nose tapers to 1/64" at tip. Jaws have radius edge to prevent nicking of precision wire.

**36-5I4-4 5/8"** Length of jaws **3/4"** **$5.15**

### FLAT NOSE



Only 1/16" wide at the tip. For gripping and holding flat surfaces or making angular bends.

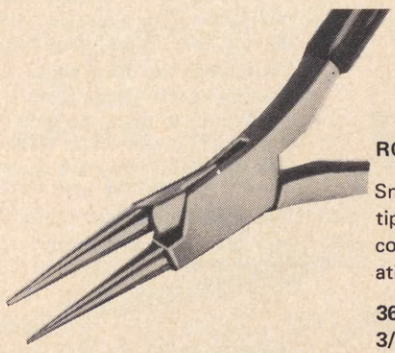
**36-5II-4 5/8"** Length of jaws **3/4"** **$2.95**

### BENT NOSE CHAIN

Tips are angled 60°. Dowel pin keeps jaws in alignment. Length of jaws 1".

**36-726S** Smooth jaws. . **$4.30**
**36-727S** Serrated jaws. . **4.30**
4 7/8" O.A.L.

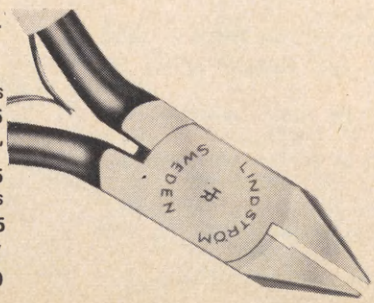
### ROUND NOSE



Smooth jaws taper to 1/64" at tip. For making loops, bends, coils and similar forming operations.

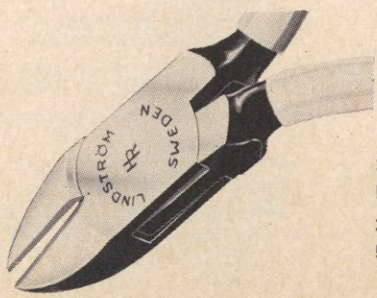
**36-5I2-4 5/8"** Length of jaws **3/4"** **$2.95**

### TAPERED NOSE DIAGONAL CUTTERS




**36-II3S-4 1/2"** Length of jaws **1/2"** SEMI-FLUSH **$5.95**
**36-II4S-5"** Length of jaws **5/8"** **$6.25**
**36-II8S-4 1/2"** Length of jaws **1/2"** FULL FLUSH **$6.25**
**36-II9S-5"** Length of jaws **5/8"** **$6.50**

### DIAGONAL CUTTERS




Regular side cutters for all normal wire cutting operations. Head crops wire close to work.

**36-077-4 1/2"** Length of jaws **1/2"** **$5.15**
**36-079-5 1/2"** Length of cut 5/8". **$5.85**



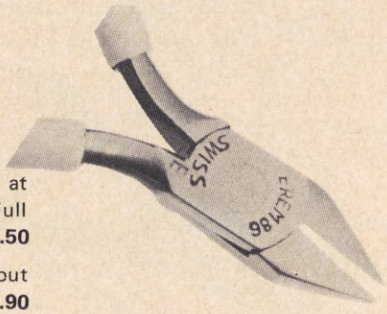
ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ERAMADIUM PRECISION PLIERS (SWISS)

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

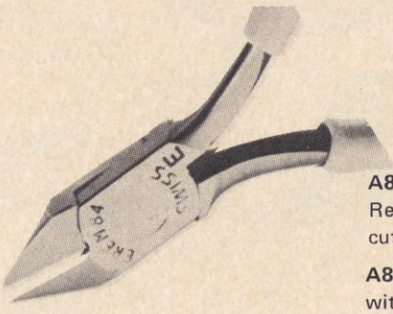
Swiss made to space-age specifications. Eramadium pliers are made from a special Chrome-Vanadium steel which, when hardened in our special process-results in a plier with 2-3 times working life. Smooth action lap-joints, hand lapped and fitted for an exact match. Supplied with cushion grips and springs. Other models available upon request.

Built to do a job - not to meet a price.



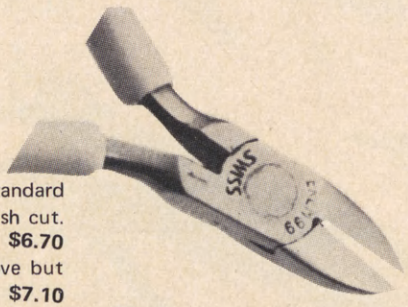

**A86E** – 4¾" long. Cuts at tip. Tapered tip shape. Full flush cut. **$7.50**

**A86EL** – Same as above but with leaf spring. **$7.90**



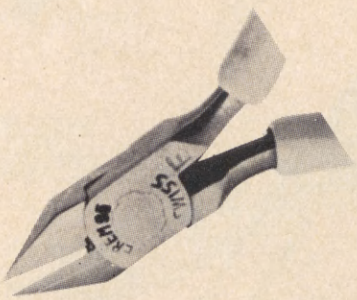

**A84E** – 4¾" long. Cuts at tip. Recessed tip shape. Full flush cut. **$7.85**

**A84EL** – Same as above but with leaf spring. **$8.00**




**A99E** – 4" long. Standard diagonal shape. Full flush cut. **$6.70**

**A99EL** – Same as above but with leaf spring. **$7.10**

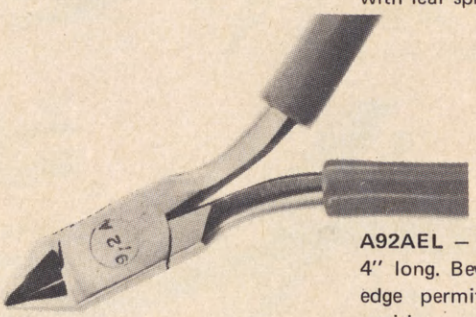



**A95AE** - 4" long. Same shape as A86E but smaller head. Full flush cut. **$7.45**

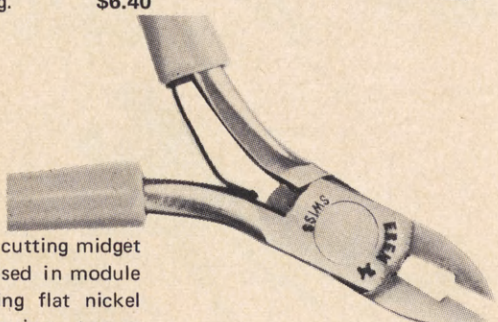
**A95AEL** Same as above but with leaf spring. **$7.85**

**A97E** – 4" long. Standard diagonal. Same as A99E but with semi–flush cut. **$5.95**

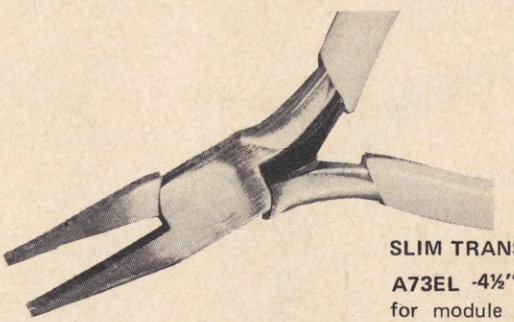
**A97EL** – Same as above but with leaf spring. **$6.40**



**A92AEL** – Short Nose Dyke 4" long. Beveled back cutting edge permits better cutting position. **$8.80**

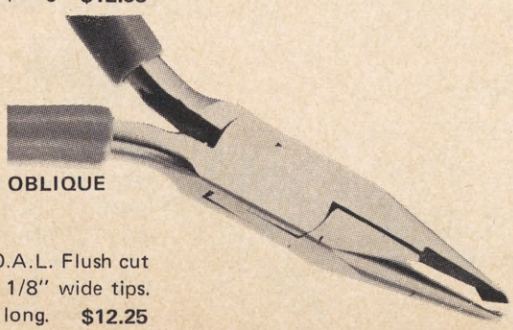



**A-74EL** – Tip cutting midget designed. Used in module work for cutting flat nickel wire. With leaf spring. **$12.95**



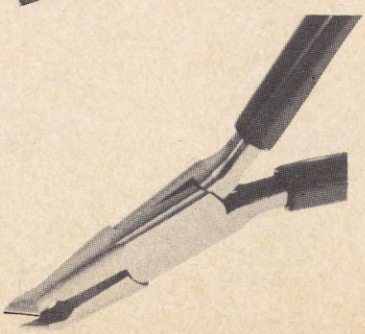
**SLIM TRANSVERSE**

**A73EL** -4½" O.A.L. Tip-Cut for module work. **$11.40**



**CHAIN NOSE OBLIQUE END CUTTER**

**A35E**- 4 3/4"O.A.L. Flush cut at a 45° angle 1/8" wide tips. Blade 1 3/16" long. **$12.25**

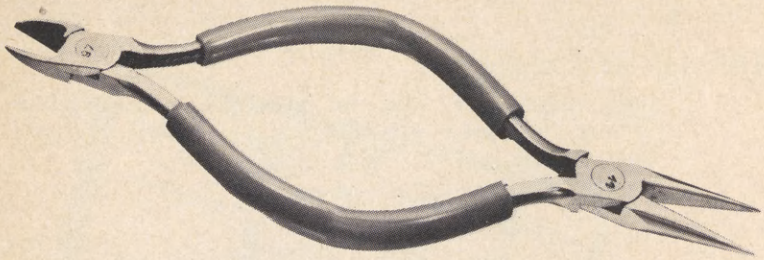


**TIP-O-DYKE**

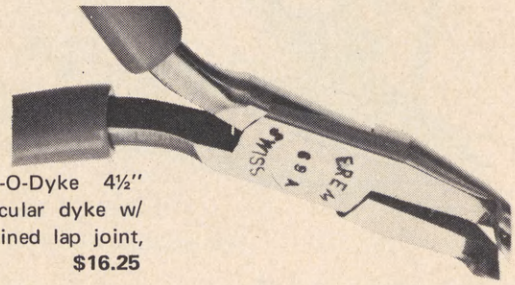
**A90EL** Cuts at tip. Angled for perfect visibility. ¼" long, 3/8" wide, 4 3/8" O.A.L. **$15.00**

# ERAMADIUM PRECISION PLIERS (SWISS)

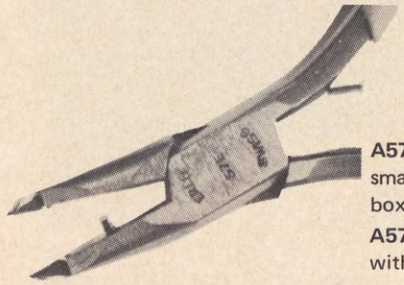
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 † Ask for Quotations



**DOUBLE ENDED ASSEMBLY PLIER A48ES** is a production line time saver. Two plier heads on a common handle. A combination of the A97S diagonal plier and the A11S chain nose plier. **$16.25**

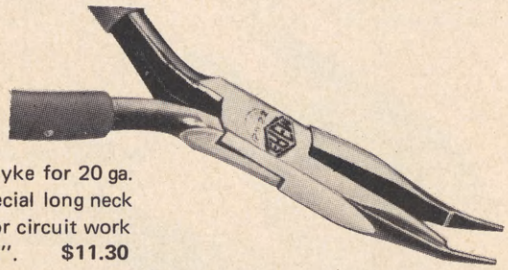


**A69AEL**— Tip-O-Dyke 4½" long. Perpendicular dyke w/ precision machined lap joint, alignment pin. **$16.25**

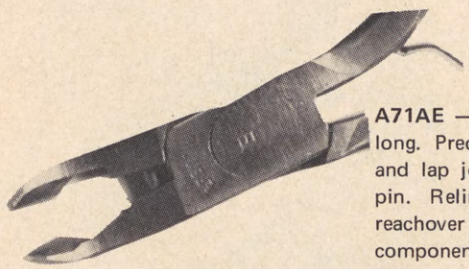


**A57E** — Tip—O—Dyke very small size. Tip length 1/8" box joint. **$16.00**

**A57EL** — Same as above but with leaf spring. **$16.25**

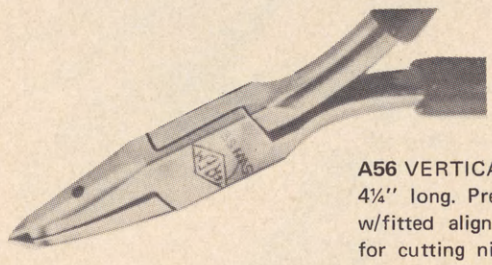


**A-8IEL**- Tip-O-Dyke for 20 ga. copper wire. Special long neck gives flush cut for circuit work Tip length 19/32". **$11.30**

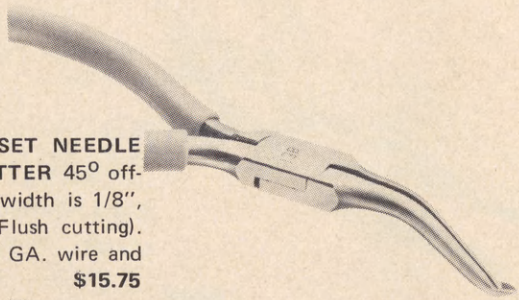


**A71AE** — Tip-O-Dyke-E 5/8" long. Precision machined pin and lap joint with alignment pin. Relined throat permits reachover in dense module and component assembly areas. **$16.00**

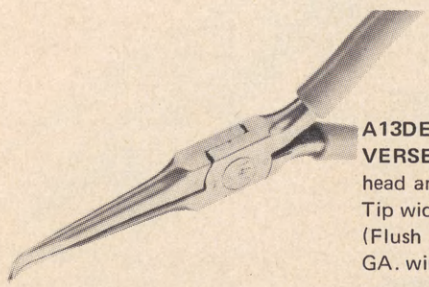
**A59EL** — 5" length. 13/32" tip, with ¼" x ¼". **$15.00**



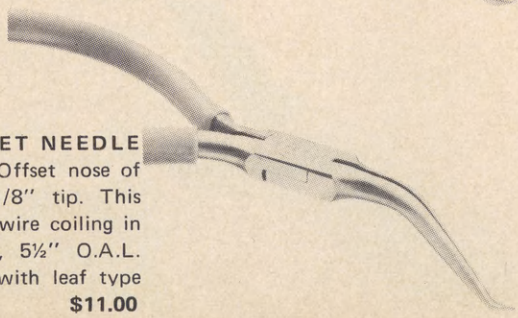
**A56** VERTICAL TIP-O-DYKE 4¼" long. Precision lap joint w/fitted alignment pin. Used for cutting nickel ribbon. **$16.25**



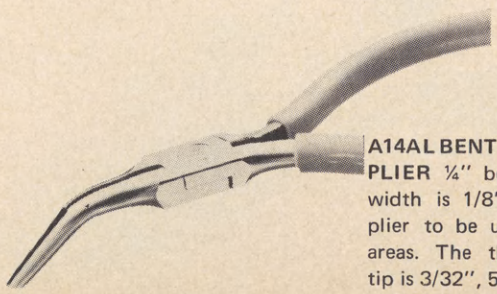
**A13BE-L OFFSET NEEDLE NOSE TIP CUTTER** 45° offset angle. Tip width is 1/8", 5½" O.A.L., (Flush cutting). For use on 24 GA. wire and smaller. **$15.75**



**A13DE-L OFFSET TRANSVERSE TIP CUTTER** Offset head and circumvented throat. Tip width is 1/8". 5½" O.A.L., (Flush cutting). For use on 24 GA. wire and smaller. **$13.20**



**A13C-L OFFSET NEEDLE NOSE PLIER** Offset nose of 45° with a 1/8" tip. This design enables wire coiling in confined areas, 5½" O.A.L. Also available with leaf type spring. **$11.00**



**A14AL BENT NEEDLE NOSE PLIER** ¼" bent tip. The tip width is 1/8" to enable this plier to be used in confined areas. The thickness of the tip is 3/32", 5¾" O.A.L. **$9.85**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

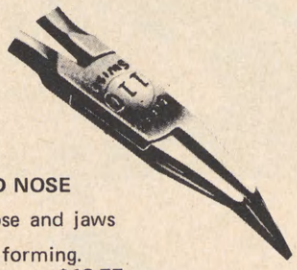
# MICROMADIUM PLIERS-CUTTERS

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

**111 - 4 1/2"**

**MINI 45° NEEDLE NOSE**

Ideal for difficult assembly areas. **$13.75**



**110 - 4 1/2"**

**OFFSET ROUND NOSE**

Satin smooth nose and jaws for no-mar wire forming. **$13.75**

**105 - 4 1/2"**

**MINI CONCAVE CONVEX**

Excellent for stress relief forming of fine wire. Smooth jaws, radius edges. Precision box joint. **$12.50**

**114 - 4 1/2"**

**MINI TRANSVERSE ANVIL CUTTER**

Used for horizontal cutting of .020 soft wire. One cutting blade. **$17.50**

**118 - 4 1/2"**

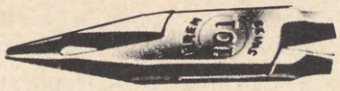
**MINI 90° TIP CUTTER**

Circumvented jaw. Used to cut .020 soft wire. Flush cut. **$20.00**

**104 - 4 1/2"**

**MINI FLAT ROUND**

One tip flat and one round, for wire forming. **$12.50**



**101 - 4 1/2"**

**MINI ROUND NOSE PLIERS**

Ideal for wire forming coiling. Satin smooth jaws and radius edges. **$12.50**

**108 - 4 1/2"**

**MINI FORMING PLIERS**

Throat is flat, nose is round for wire forming. Precision box joint. **$12.50**

**109 - 4 1/2"**

**OFFSET NEEDLE NOSE**

Needle nose and offset head for those difficult assembly areas. **$13.75**

**120 - 4 1/2"**

**MINI SHEAR CUTTER**

A miniature shear cutter with 3/32" cut-off. Shear type cut reduces shock on component .020 soft wire max. **$25.00**

**115 - 4 1/2"**

**RELIEVED HEAD TIP CUTTER**

For use in limited access areas. Will cut .020 max. soft wire. Relieved head. Flush cut. **$17.50**

**117 - 4 1/2"**

**MINI 45° TIP CUTTER**

Will cut .020 maximum soft wire. Relieved jaw. Flush cut. **$17.50**

**102 - 4 1/2"**

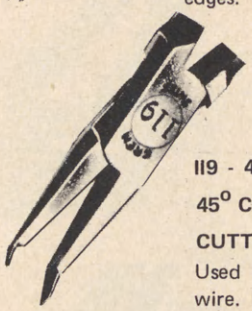
**MINI ROUND NOSE**

Excellent for percision miniature assembly applications. Satin smooth jaws and radius edges. **$12.50**

**106 - 4½"**

**MINI FLAT NEEDLE NOSE PLIER**

Excellent for precision miniature assembly applications. Satin smooth jaws and radius edges. **$12.50**



**119 - 4 1/2"**

**45° CHAIN NOSE TIP CUTTER**

Used to cut .020 max. soft wire. Flush cut. **$20.00**

**103 - 4 1/2"**

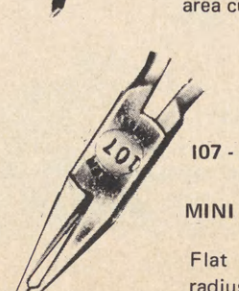
**MINI ROUND OVAL**

One tip round and one oval for wire forming. **$12.50**

**116 - 4 1/2"**

**OFFSET RELIEVED JAW TIP CUTTER**

For cutting .020 max. soft wire. Relieved jaws for dense area cutting. Flush cut. **$20.00**



**107 - 4 1/2"**

**MINI FLAT NOSE**

Flat tips, smooth jaws and radius edges. Ideal for assembly applications. **$12.50**

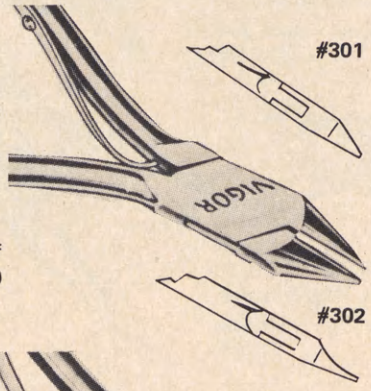
# BOX JOINT PLIERS (SWEDISH STEEL)

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

Special Swedish Tool Steel drop forged carefully machined and heat treated. Pliers are hand finished from head to handles. Box Joints assure perfect alignment of points and cutting edge guaranteed durability. Cushion grips are available for comfort and minimize fatigue.
Nickel Plate is available where indicated. *Please specify suffix "N" after Plier Number.

Pliers are available in 3 jaw types: Standard—for normal use. Semi—Flush—where close tolerance requires a minimum of remaining wire. Full Flush Cut—where micro—miniature work and tolerances require the cut leave no wire peak. When ordering Cushion Grips, specify suffix "CG" to Plier Number and add 25¢ each.

### SLIM LINE NEEDLE POINT DIAGONAL CUTTERS




Narrow tapered nose. Jaws taper to 1/32". Box joint full flush cut. Complete with leaf spring in handle. Excellent for electronic production.

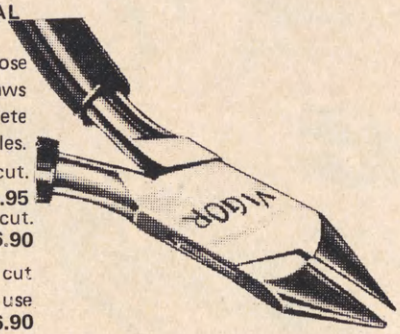
**PL-301-4 1/4".** Inside length of jaws, 1/2". **$7.20**

**PL-302-4½"** Undercut **$7.20**

### DIAGONAL CUTTERS

**PL-297-4½"** Flush cut. Thickness of joint, 3/16". Inside length of jaw, 9/16". **$7.35**

### NEEDLE POINT DIAGONAL CUTTERS



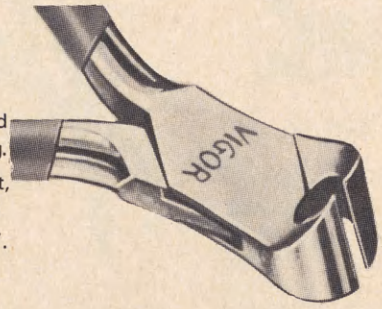

Narrow tapered nose for close cutting. Box joints with jaws tapering to 1/32". Complete with coil spring in handles.

**PL-504 1/2A,** Semi-flush cut. **$5.95**

**PL-504 1/2B,** Full-flush cut. **$6.90**

**PL-504 1/2"C,** Full-flush cut with under cut to facilitate use in critical areas. **$6.90**

### END CUTTERS

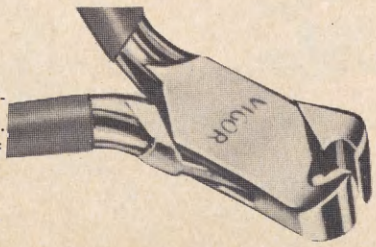



Matched precision and ground edges for clean, close cutting.

**PL-404 1/2".** Width of cut, 7/8". **$5.65**

**PL-405".** Width of cut, 7/8". **$5.95**

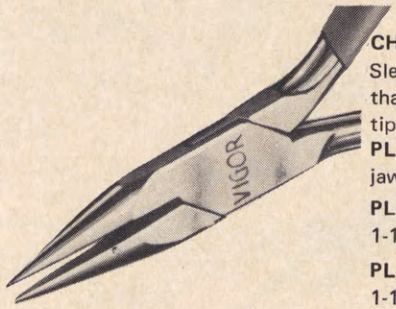
### FLUSH CUTTING END NIPPER




Construction of the jaw permits nipping close to the work. Flat jogs at inside corners of jaws prevent dulling.

**PL-1300-4¼".** Length of jaws, 17/32". **$6.50**

### CHAIN (SNIPE NOSE) PLIER



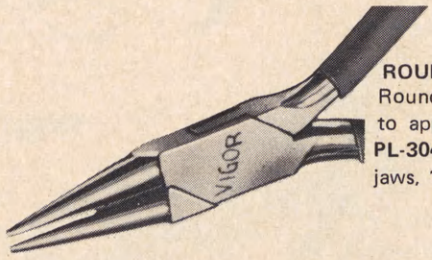

Slender plier with Short Jaws that taper to a pointed strong tip 1/32". Smooth jaws.

**PL-204 1/2".** Inside length of jaws, 1-1/32". **$4.60**

**PL-205".** Inside length of jaws, 1-1/8". **$5.00**

**PL-206".** Inside length of jaws, 1-1/32". **$5.50**

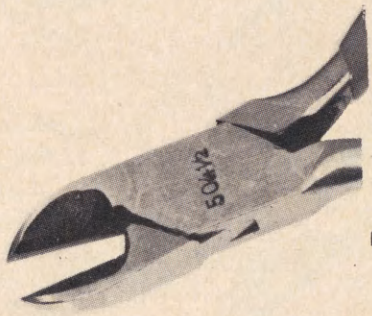
### ROUND NOSE PLIER




Round smooth jaws tapering to approximately 1/8".

**PL-304 1/2".** Inside length of jaws, 1". **$4.75**

### DIAGONAL CUTTERS




For close work. Full cutting strength at tips.

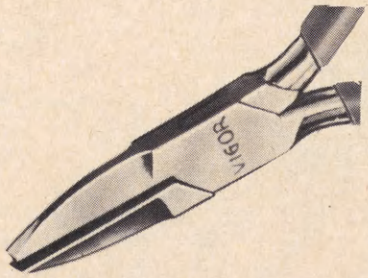
**PL-504 1/2".** Length of cut, 9/16". **$5.25**

**PL-504 1/2"N** **$5.75**

**PL-505".** Length of cut 9/16" **$5.95**

**PL-506".** Length of cut 7/8". **$6.75**

### FLAT NOSE PLIER



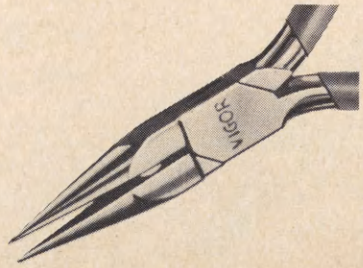

Matched flat, square jaws tapering to approximately 1/32" at tips.

**PL—104½"** Length of jaws 1 1/32". Width of tips 5/32". **$4.60**

**PL—105"** Length of jaws 1 1/8". Width of tips 7/32". **$5.00**

**PL—106"** Length of jaws 1 1/32". Width of tips ¼". **$5.50**

### COMBINATION CHAIN AND CUTTER SIDE



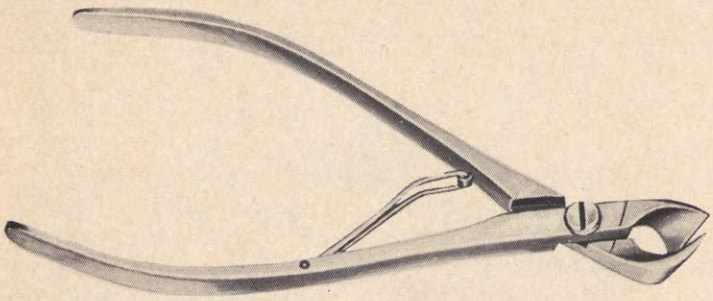

A dual purpose precision plier for coiling and cutting. Jaws taper to approximately 1/32". Smooth Jaws.

**PL-254 1/2".** Inside length of jaws, 1-5/16". **$6.15**

**PL-255".** Inside length of jaws 1-1/2". **$6.40**

# SPECIAL PURPOSE PLIERS

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations



### LIGHTWEIGHT, SCREW JOINT NIPPERS AND PLIERS

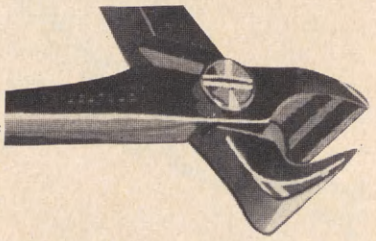
Adjustable rivet screw changes friction pressure of the jaws for optimum comfort and for resharpening. Slim design for ease of operation. Hand finished to perfection and accuracy. Excellent for cutting of wire and ribbon.

### NIPPERS

Oblique angle head. One end of the jaw pointed, and the other rounded. Curved handles. Flush cut. 4 5/16" O.A.L.

**PL–219** Length of cutting edge 5/8". **$8.00**

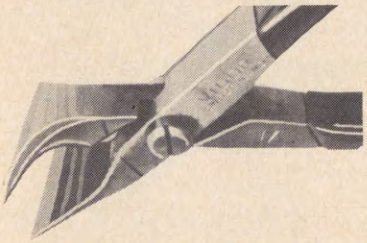
**PL–219N** Same as above except nickel plated with spring. **$14.75**



### NIPPERS

Right angle head, both ends of jaw pointed, curved handles.

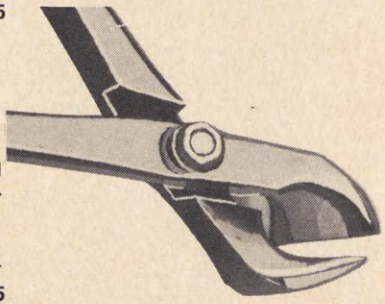
**PL-51-4 1/2"** Flush cut. Length of cutting edge 11/16". **$4.75**



### NIPPERS

Oblique Angle head, one end of jaw is pointed the other rounded, straight handles.

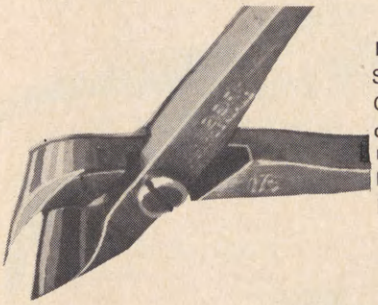
**PL-217-4 3/8"** – Flush cut. Length of the cutting edges 21/32". **$8.00**



### NIPPERS

Oblique angled head one end of jaw is pointed the other rounded, curved handles.

**PL-52-4 1/2"** Flush cut. Length of cutting edge 5/8". **$4.75**

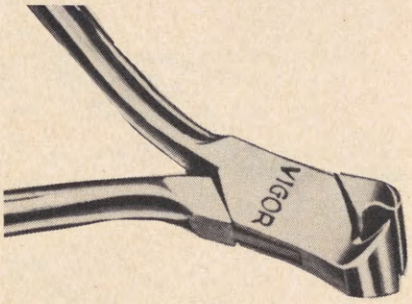


### NIPPERS

Same as PL-217 but shorter. Oblique angle. head, one end of jaw is pointed the other rounded with straight handles.

**PL-217C-4 1/8"** Flush cut. Length of cutting edge 9/16".

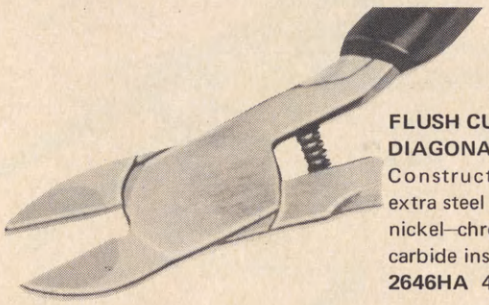
**$8.00**




### END CUTTERS"M-BAR" RIGHT ANGLE HEAD

Flush cut box joint.

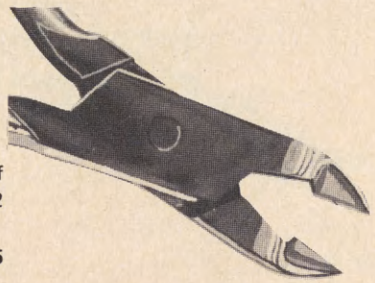
**PL-804 1/2"** **$7.20**



### FLUSH CUTTING DIAGONAL CUTTER

Constructed of vanadium-extra steel with highly polished nickel–chromium plating, with carbide insert.

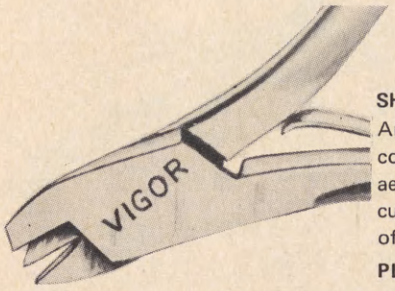
**2646HA** 4¾" O.A.L. **$14.50**



### FLUSH-CUTTING WIRE NIPPER

Designed for flush-cutting of component wires .010, to .012 hard or .025 soft.

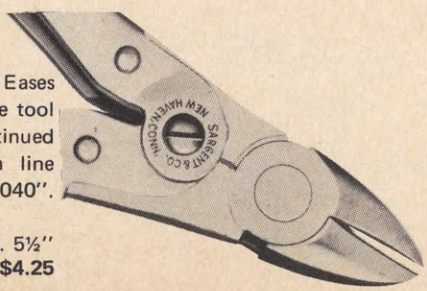
**I50-NP-5"** **$2.95**




### SHEAR CUTTER

Anti-shock cutter eliminates component shock hazard for aerospace industries. Square cuts are an additional feature of the pliers.

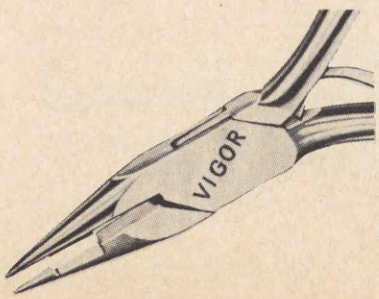
**PL-309** **$5.80**




### COMPOUND ACTION

Spring action handle. Eases hand–fatigue. High grade tool steel is excellent for continued heavy duty production line work. Cuts wire up to .040". Nickel–plated.

**177**–(Standard cut jaws. 5½" O.A.L.) **$4.25**




### CHAIN NOSE PLIER WITH CUTTERS

For cutting small wires. In addition performs as chain nose plier. Cutter begins 5/16" from tip which tapers to 1/32".

**PL-204 1/2"E** Smooth jaws, Inside length, 1 1/32". Length of cutter 5/16". **$6.75**

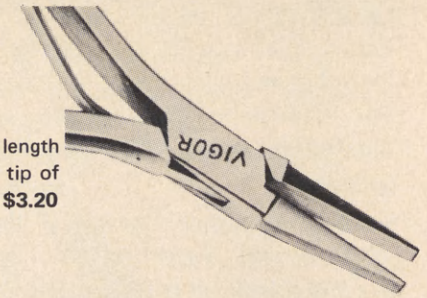
# SPECIAL PURPOSE PLIERS

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

### FLAT NOSE

Jaws taper to 1/32".

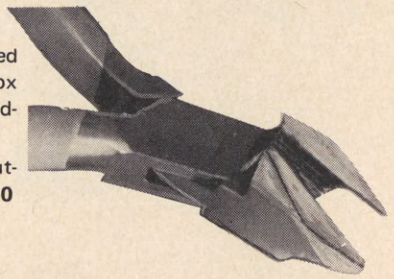
**PL-1005-4 3/4".** Inside length of jaws, 7/8". Width of tip of jaw 1/8". **$3.20**
West Germany




### OBLIQUE DIAGONAL CUTTERS

Stubbs pattern plier beveled head extends 1/4" above box joint. Sturdy plier with standard edges.

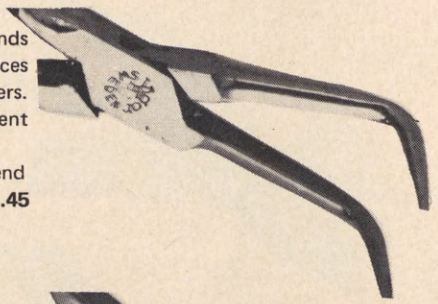
**PL-504 1/2"G.** Length of cutting edge 1-13/16". **$4.50**



### CURVED NEEDLE NOSE PLIER

Slender jaws milled at the ends for reaching into tight places not accessible to regular pliers. Jaws taper to 1/16". Excellent for limited access areas.

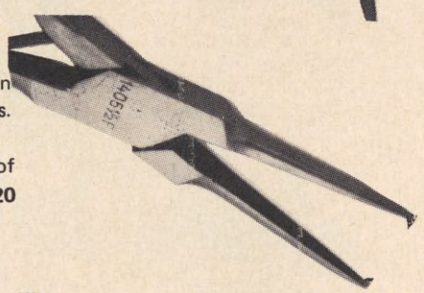
**PL-1405 ½" H** Length of bend 1¼". **$7.45**



### LONG NOSE PLIER WITH FLUSH CUT TRANSVERSE NIPPER TIPS

Used to cut wire and ribbon in the most limited access areas. Complete with leaf spring.

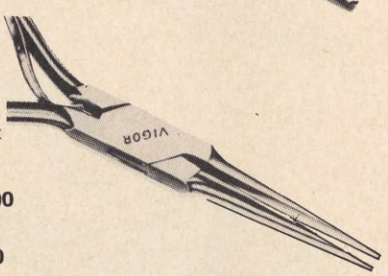
**PL-I405 I/2"F.** Inside length of jaws, I-9/I6". **$8.20**



### LONG CHAIN NOSE PLIER

Long jaws to reach into tight places. Jaws taper to 1/16".

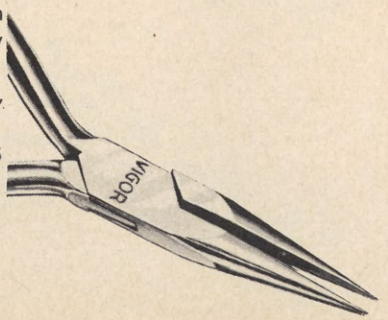
**PL-1406"I** Smooth jaws. **$7.00**
**PL-1456"I** Milled jaws. Inside length of jaws 1 7/8". **$7.00**

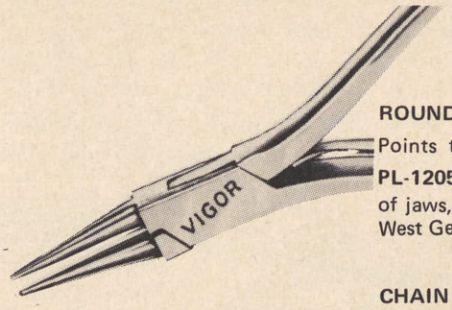



### LONG CHAIN NOSE PLIER

Short handle and long slim jaws tapering to approximately 1/32". 4½" O.A.L.

**PL-1404 1/2"** Smooth jaws, **$4.75**
**PL-1454 1/2"** Milled jaws. **$4.75**
**PL-1405"** Smooth jaws. 5" O.A.L. **$5.00**
**PL-1406"** Smooth jaws. 6" O.A.L. **$5.50**




### ROUND NOSE

Points taper to 1/16".

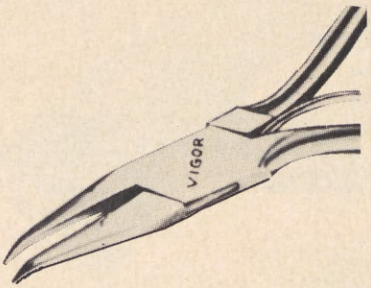
**PL-1205-4 3/4".** Inside length of jaws, 3/4".
West Germany **$3.20**

### CHAIN NOSE PLIER WITH CURVED TIPS

Excellent for work in angled areas and in corners.

**PL-204 I/2" L** Smooth Jaws.

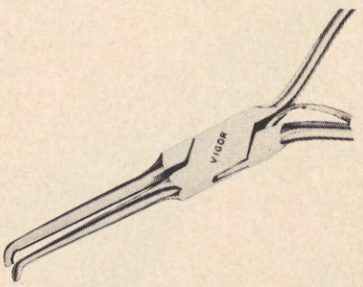
Inside length of jaws, I". Length of bend, I/8". **$5.40**




### LONG NEEDLE NOSE PLIER WITH SLIGHTLY CURVED TIPS

Smooth jaws taper to 1/16".

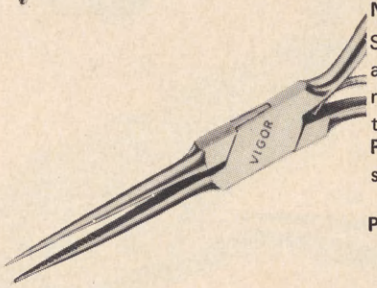
**PL—1406"J** Length of bend 7/16". **$7.45**




### FINE LONG NEEDLE NOSE PLIERS

Strong gripping capacity all along the long jaws which can reach into tight places. Jaws taper to 1/16".

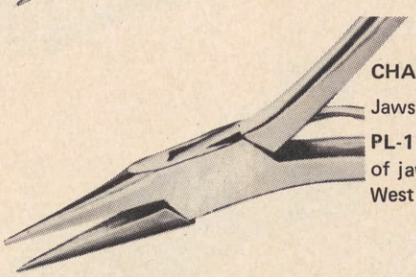
**PL-1406"K** Smooth jaws, Inside length of jaws 2-13/16". **$7.10**
**PL-1456"K** Milled jaws. **$7.10**




### CHAIN NOSE

Jaws taper to 1/32".

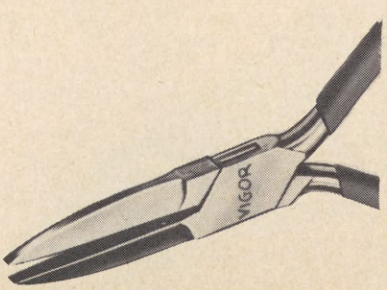
**PL-1105-4 3/4".** Inside length of jaws, 15/16". **$3.20**
West Germany



### LONG FLAT NOSE PLIERS

Short handle and long slim nose tapering approximately 1/32" at the edge. Width of jaws 11/64".

**PL-I504 1/2"** Smooth jaws, 4½" O.A.L. **$4.75**
**PL-1506"** Smooth jaws, 6" O.A.L. **$5.50**






ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# MICRO-ASSEMBLY TWEEZERS - 'TEC' (SWISS)

**QUANTITY DISCOUNTS:** **1-24 Net** **25-49 10%** **50-100 15%** **101-144 20%** **145 + Ask for Quotations**

STAINLESS STEEL, ANTI–MAGNETIC ANTI–ACID*

These "TEC" tweezers are newly designed to meet the precision, lightweight requirements of the electronic industry. Swiss-crafted of the finest steels available and designed to fit the hand and the job. Hardened points for added durability. "Tensionized" to provide correct spring action and reduce hand fatigue. Dumont Styles 1-7 are now available in Titanium, anti-magnetic, heat resistant to 1000°

"TEC–C" An economy line made from carbon steel. Gross prices available upon request. Teflon coating available at $1.85 each. Minimum order one dozen. When selecting–Prefix 9 (as 901) designates stainless anti-magnetic, anti-acid. Prefix 2 (as 201) designates carbon steel. Prefix 8 (as 801) designates Titanium.

Special quotations for large quantities or blanket orders.

**1– TW– 901** General use, strong blades with fine points–Length 4¾" O.A.L. Anti-magnetic and anti-acid. **$3.05**

**1–TW–201** (Carbon) . . . . . **$2.05**
**1–TW–801** (Titanium) . . . . . **$6.00**

**2–TW–902** General use, blades taper sharply from body, strong regular beveled points–Length 4¾" O.A.L. Anti-magnetic and anti-acid. . . . . **$3.20**

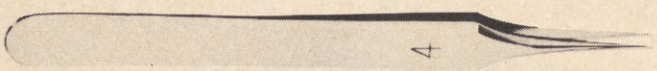
**2–TW–202 (Carbon)** . . . . . **$2.20**
**2–TW–802 (Titanium)** . . . . . **$6.00**

**3–TW–903** Assembly work, very fine round points, regular size–Length 4¾" O.A.L. Anti-magnetic and anti-acid . . . . . **$3.00**

**3–TW–203 (Carbon)** . . . . . **$2.10**
**3–TW–803 (Titanium)** . . . . . **$6.20**

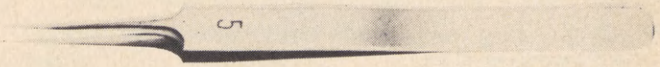
**3C–TW–903C** Assembly work, very fine rounded points as Type #3 but shorter–Length 4¼" O.A.L. Anti-magnetic and anti-acid. . . . . **$3.00**

**3C–TW–203C (Carbon)** . . . . . **$2.10**
**3C–TW–803C (Titanium)** . . . . . **$6.20**



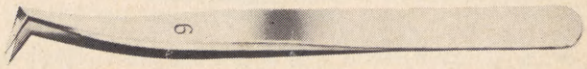
**4–TW–904** Extra fine work, blades taper sharply from body to very fine long rounded points–Length 4½" O.A.L. Anti-magnetic and anti-acid . . . . . **$3.85**

**4–TW–204 (Carbon)** . . . . . **$2.85**
**4–TW–804 (Titanium)** . . . . . **$6.50**



**5–TW–905** Extra fine work, long blades break sharply from body and taper to super fine rounded points–Length 4 3/8" O.A.L. Anti-magnetic and anti-acid. . . . . **$3.85**

**5–TW–205 (Carbon)** . . . . . **$2.85**
**5–TW–805 (Titanium)** . . . . . **$6.50**

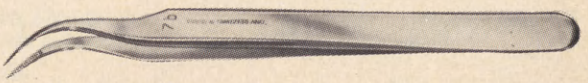


**6–TW–906** Hairspring or wire coiling, sharply angled super. fine tapered points–Length 4¼"–Length of points 9/16" O.A.L. Anti-magnetic and anti-acid. . . . . **$4.40**

**6–TW–206 (Carbon)** . . . . . **$3.45**

**7–TW–907** Assembly work, hand can rest on bench, curved super fine rounded points–Length 4 3/8" O.A.L. Anti-magnetic and anti-acid. . . . . **$4.40**

**7–TW–207 (Carbon)** . . . . . **$3.45**
**7–TW–807 (Titanium)** . . . . . **$7.45**



**7B–TW–907B** Same as Type #7 but with serrated jaws for non-slip action–Length 4 3/8" O.A.L. Anti-magnetic and anti-acid. . . . . **$4.35**

**7B–TW–207B (Carbon)** . . . . . **$3.45**

**8–TW–908** Extra heavy tweezer for bending or straightening, blades angle to non-cutting knife edge–Length 4½" O.A.L. Anti-magnetic and anti-acid. . . . . **$4.95**

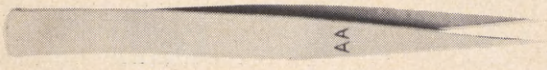
**8–TW–908 (Carbon)** . . . . . **$4.50**

# GENERAL ASSEMBLY TWEEZERS— 'TEC' (SWISS)

**QUANTITY DISCOUNTS:** 1-24 Net 25-49 10% 50-100 15% 101-144 20% 145 + Ask for Quotations

Same quality performance, same engineering as "Tec" tweezers but economically-priced for production line applications and bulk buying. Durable sharp points and cutting edges. Completely nickel-plated to prevent corrosion.

TEFLON-coating (1½ mil) available at $1.85 each. Minimum order: 1 dozen. Heavier Coatings of Teflon, Kynar, KEL-F, P.V.C. available upon request.



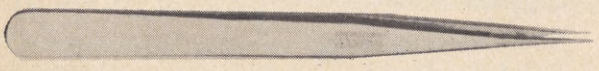

**AA-TW-301** Strong tweezer, fine points, beveled edges—Length 4¾". Steel-Nickel Plated. **$1.00**

**BB-TW-302** Hollow handle, light weight, fine points—Length 4½". Steel-Nickel Plated. **$1.00**

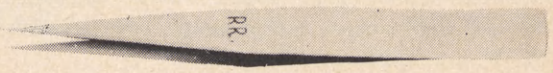
**D-TW-312** Heavy duty cutting tweezers for use in fine work—Length 3¾". Width of cutting edges ½". Steel-Nickel Plated. **$2.25**

**932—SELF LOCKING TWEEZERS** Handles are squeezed to open points. Small blades, sharp smooth points—Length 4¾". Stainless Steel **$3.50**

**MM-TW-306** Assembly tweezers, extra long strong blades, fine beveled points—Length 5". **$1.20**



**TW-13** Strong short non-magnetic blades. Especially for truing balances. **$3.50**




**RR-TW-311** Large heavy tweezers, medium fine points, long blades beveled at the points—Length 5½". **$1.90**

**TW-351** Extra long tweezer, smooth curved points—Length 6¾"—Length of points ¾". Steel-Nickel Plated. **$.67**

**TW-352** Extra long tweezer, straight points—Length 6⅞". Steel-Nickel Plated. **$.67**

**TW-364** Common, all purpose tweezer. Steel-Nickel Plated—Length 4½". **$.50**

**TW-354** Serrated points to grip object, non slip corrugated grip for comfortable handling. Different size points and lengths. Chrome plated to prevent corrosion. Fine rounded points—Length 5½" **$1.85**

**TW-14AN** For very soft wire, with hooked end for getting into very tight places. Carbon Steel **$8.25**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# MICRO-ASSEMBLY TWEEZERS

**QUANTITY DISCOUNTS:** **1-24 Net** **25-49 10%** **50-100 15%** **101-144 20%** **145 + Ask for Quotations**

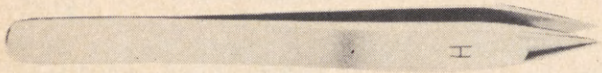
"TEC" TWEEZERS FOR MICRO–ASSEMBLY
Stainless Steel, anti-magnetic, anti-acid ($H_2F$ $H_3N$). Teflon coating $1.85 each (1 dozen minimum). Heavier coating of Teflon Kynar Kel–F available upon request.

**O–TW–936** General purpose, assembly, slim blades tapering to fine rounded points–Length 4½" O.A.L. Anti-magnetic and anti-acid. **$3.00**

**O–TW–236** (Carbon) **$2.60**

**OC–TW–930C** Small slim tweezer, extra fine points–Length 3½" O.A.L. Anti-magnetic and anti-acid. **$3.00**

**OC–TW–230C** (Carbon) **$2.60**




**H–TW–929** General coarse work, short stubby blades, regular point–Length 3½" O.A.L. Anti-magnetic and anti-acid. **$2.50**

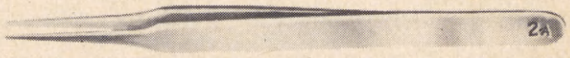
**GG–TW–939** Heavy duty tweezer, long blades that break sharply from the body to fine rounded points–Length 5" O.A.L. Anti-magnetic and anti-acid. **$2.10**

**GG–TW–239** (Carbon) **$1.60**

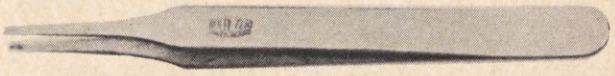
**OO–TW–900** Heavy duty, strong blades, tapering to regular strong points–Length 4½" O.A.L. Anti-magnetic and anti-acid. **$3.20**

**OO–TW–200** (Carbon) **$2.40**

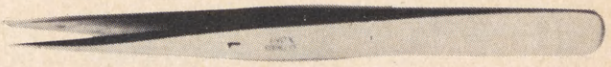
**AC–TW–937** Strong short heavy blades tweezers, serrated handle for firm grip–Length 4½" O.A.L. Anti-magnetic and anti-acid. **$3.65**



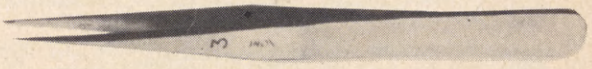

**TW-902A** Flat tipped, approx. .050" and smooth all sides to prevent marring silicon, germanium and crystal wafers. Stainless anti-magnetic and anti-acid. **$3.25**



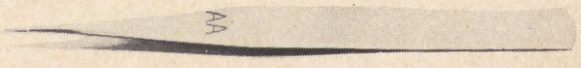
**TW-902AN** Same tweezer as the TW-902A except construction of non-magnetic German silver. **$3.00**



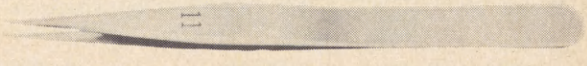
**TW-11** Tapered shanks with beveled edges and sharp points. Same as No. 1 made of non-magnetic German silver. **$2.75**



**TW-12** For miniature and micro-miniature parts. They have tapered shanks with beveled edges, and honed points. Non-magnetic German silver. 4 5/8" O.A.L. **$3.20**




**AA-TW-938** Strong tweezer, fine points with beveled edges—Length 5". **$2.85**




**11–TW–911** Non-magnetic, general purpose tweezer, strong blades tapering to fine beveled points–Length 4¾" O.A.L. Anti-magnetic and anti-acid. **$3.60**

**ALL PRICES SUBJECT TO CHANGE** **F.O.B. PHILADELPHIA**

# MICRO-ASSEMBLY TWEEZERS (MADE IN USA)

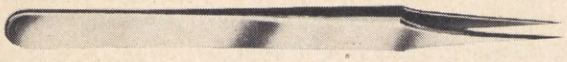
**QUANTITY DISCOUNTS:** **1-24 Net** **25-49 10%** **50-100 15%** **101-144 20%** **145 + Ask for Quotations**

Highest quality stainless steel anti-magnetic, anti-acid. Made by master craftsmen, these tools have been specifically designed and precision-shaped for ease of handling micro-miniature parts in electronic instrumentation and related fields, where extremely sharp, strong points and delicate tension are required.

TEFLON-coating (1½ mil) available at $1.85 each. Minimum order: 1 dozen. Heavier Coatings of Teflon, Kynar, KEL-F, P.V.C. available upon request.

LARGE QUANTITY QUOTATIONS AND BLANKET ORDERS GIVEN SPECIAL CONSIDERATION.

U.S.A.



**382A** For general use—Tapered blades—Fine points. Stainless steel and anti-magnetic.

**$3.75**

U.S.A.

**383A** For assembly work—Very fine points. Stainless steel and anti-magnetic.

**$3.65**

U.S.A.

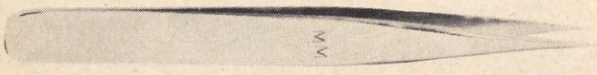
**384A** For extra-fine work—Blades taper sharply from body—Super-fine points. Stainless steel and anti-magnetic.

**$4.65**

U.S.A.

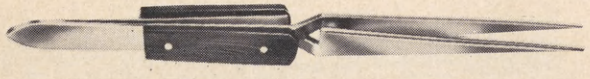
**380A** For general use—Strong blades—Fine points. Stainless steel and anti-magnetic.

**$3.50**



**AN-463** Anti-magnetic brass version of pattern mm. Excellent handling parts that scratch easily. 5" O.A.L.

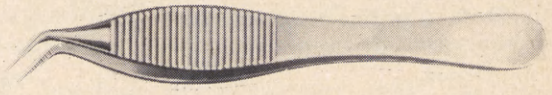
**$1.80**



**#111 TENSION SOLDERING TWEEZERS** Straight 6" long complete with insulated handles, non-serrated straight jaws. (Can assort with #113.)

**$2.80**

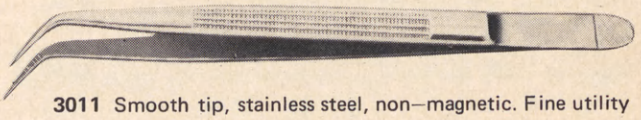
U.S.A.



**389** Smooth tip, stainless steel, non—magnetic. New full body on handle for less hand fatigue.

**$5.00**

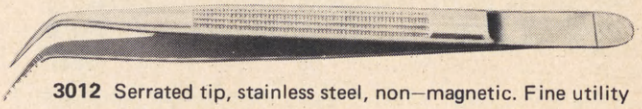
U.S.A.



**3011** Smooth tip, stainless steel, non—magnetic. Fine utility tweezer. Positive spring action.

**$1.75**

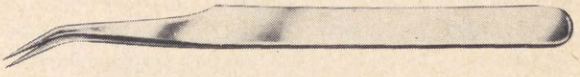
U.S.A.



**3012** Serrated tip, stainless steel, non—magnetic. Fine utility tweezer. Positive spring action.

**$1.75**

U.S.A.



**385A** For assembly work—Superfine points. Stainless steel and anti-magnetic.

**$4.75**

U.S.A.

**394A** For extra-fine work—Blades taper sharply from body—bent points. Stainless steel and anti-magnetic.

**$4.75**

**#113 TENSION SOLDERING TWEEZERS** Curved offset jaws, 6" long non-serrated breaks, insulated handle. (Can assort with #111.)

**$3.00**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# GENERAL ASSEMBLY TWEEZERS - TRICEPS

**QUANTITY DISCOUNTS:** 1-24 Net 25-49 10% 50-100 15% 101-144 20% 145 + Ask for Quotations

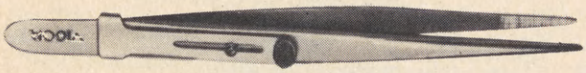
"TECHNI–TOOL" INDUSTRIAL TWEEZERS – various coatings available. (See page No. 26)

LARGE QUANTITY QUOTATIONS AND BLANKET ORDERS RECEIVE SPECIAL CONSIDERATION.

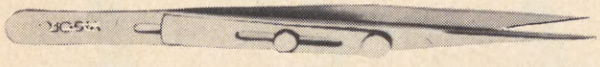
**TW-384** Slide lock tweezers. Slide is advanced or retracted with thumb to lock, one hand operation. Smooth wide points—Length 6½". Steel-Nickel Plated. **$.70**

**TW-385** Self locking tweezers, handles are squeezed to open points. Blunt corrugated point—Length 6½". Steel-Nickel Plated. **$.60**

**TW-350** Extra long tweezers, corrugated points, serrated non slip grip—Length 7". Steel-Nickel Plated. **$.80**

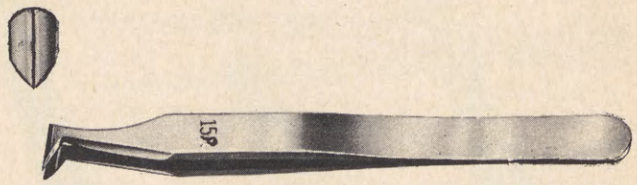


**TW-356** Slide lock tweezers. Slide is advanced or retracted with thumb to lock. One hand operation. Strong corrugated blunt points, serrated non slip grip—Length 5½". Steel-Nickel Plated. **$3.00**

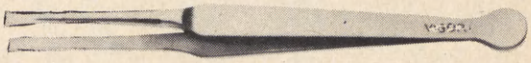


**TW-357** Slide lock tweezers. Slide is advanced or retracted with thumb to lock, one hand operation. Strong corrugated sharp points. Serrated non slip grip—Length 5½". Steel-Nickel Plated. **$3.00**

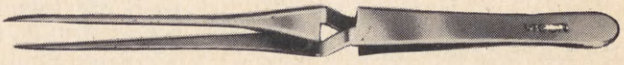
**TW-215A VIGOR STEEL**—*Cutting edges angle to a point*—Fine cutting tweezers, strong nipper-like blades. Cutting edges angle to a point to cut close as on super fine wire—Length 4¼". Length of Jaws 9/16". **$7.25**



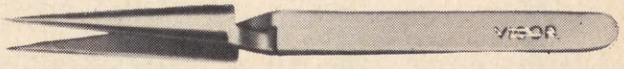

**TW-215AP VIGOR STEEL** Same as type #15A but with cutting edges parallel for more cutting strength—Length 4¼". Length of Jaws 9/16". **$7.25**



**TW-381** Very strong, heavy blades, dull metal, blunt serrated tips. Used for soldering and other purposes. **$.40**



**TW-386** Self locking tweezers. Handles are squeezed to open points, medium sharp corrugated points—Length 6½". Steel-Nickel Plated. **$.65**



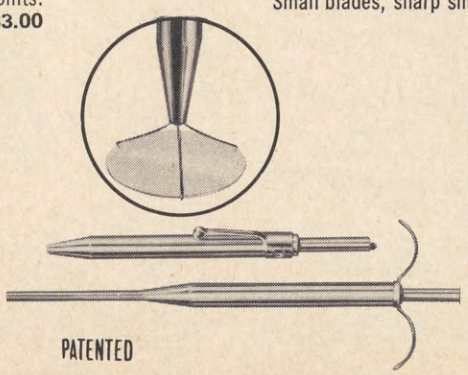
**TW-392** Self locking tweezers. Handles are squeezed to open points. Small blades, sharp smooth points—Length 4¾". Steel-Nickel Plated. **$.50**

**TRICEPS®**

All stainless steel instrument. The plunger activates three self-flaring, hooked spring steel fingers. Any object within their grasp is held firmly but gently for as long as you like, without maintaining any finger pressure.

MODEL T5 to span 2½ inch diameters (vs 1½" for all other models). Ideal for grasping the larger wafers, substrates, crystals, etc. now being used. . . . . .**$5.75** ea.

**T4** 4½". . .**$3.60** **T6L** 6½". . . .**$5.90** **T8** 8". . . .**$4.70**
**T8L** 8". . .**$6.20** **T12** 12". . . .**$5.50** **T18** 18". .**$6.70**



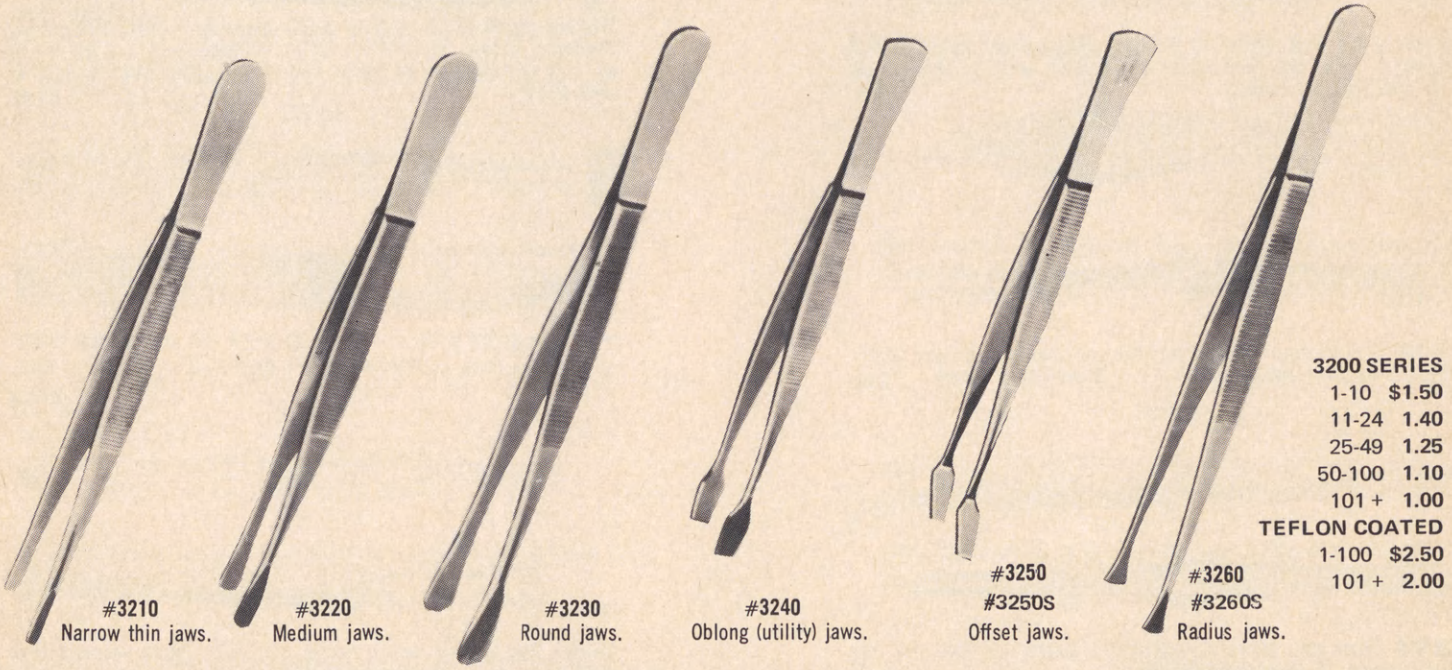

**ADDITIONAL FEATURES FOR ALL MODELS:**

Knife-edge finger-tips to facilitate lifting the thinnest wafers from flat surfaces . . . . . **add $1.00 ea.**
Reduced grasping force for the most fragile wafers (except on T12 and T18). . . . . **add $.50 ea.**
Doubled grasping force . . . . . **add $.50 ea.**
Bent long-nose for restricted areas. . . . . **add $1.00 ea.**
4-finger versions of: T4 @ **$5.40** ea.; T5 @ **$8.10** ea.; T6L @ **$8.40** ea.; T8 @ **$7.10** ea.; T8L @ **$8.90** ea.
Extra-long models . . . . . **.per quote**
Combinations of the above. . . . . **.per quote**
A hole in the top of the plunger to suspend an object being held by the TRICEPS in a plating bath, oven, vacuum chamber, spray booth, etc. . . . . **add $1.00 ea.**

# SEMI-CONDUCTOR TWEEZERS - WAF-O-GRIP

Specially designed tweezers for handling wafers. Smooth wide tips. Special surface polish will not mar or scratch surface of wafer. Supplied standard nickel plated steel. Model Nos. 3250 and 3260 available in special analysis stainless, anti-magnetic, anti-acid steel.

TEFLON-coating (1½ mil) available. Also, KEL-F, Kynar P.V.C. in standard and heavier coatings upon request.



**#3210** Narrow thin jaws.

**#3220** Medium jaws.

**#3230** Round jaws.

**#3240** Oblong (utility) jaws.

**#3250** **#3250S** Offset jaws.

**#3260** **#3260S** Radius jaws.

**3200 SERIES**

| | |
|---|---|
| 1-10 | **$1.50** |
| 11-24 | **1.40** |
| 25-49 | **1.25** |
| 50-100 | **1.10** |
| 101 + | **1.00** |

**TEFLON COATED**

| | |
|---|---|
| 1-100 | **$2.50** |
| 101 + | **2.00** |

**#3350S & #3360S** are stainless steel, anti-acid and anti-magnetic . . . . . **$3.00 ea.** **TEFLON COATED** 1-100 **$4.50** 101 + **$4.00**

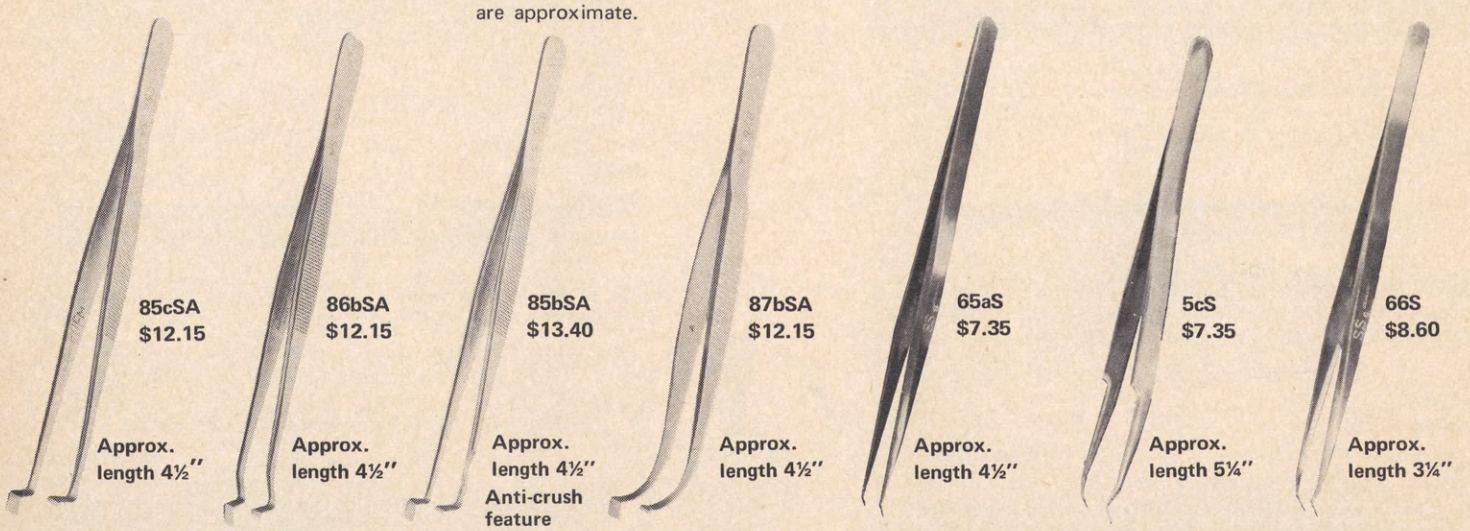
## "WAF-O-GRIP"

### FOR WAFER HANDLING

Prevents wafer tweezers from going beyond 1/16" from wafer edge, which eliminates breakage and damage of the Integrated Circuits. Positive holding action. Wafer tweezers will handle 2" diameter by .010 and larger. 1½ to 5 mil Teflon coating available on request. All demensions shown are approximate.

## "EASY-GRIP"

### FOR DIE ATTACHING



**85cSA** **$12.15** Approx. length 4½"

**86bSA** **$12.15** Approx. length 4½"

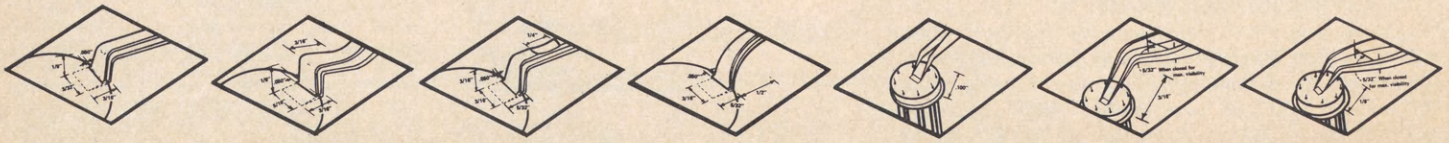
**85bSA** **$13.40** Approx. length 4½" Anti-crush feature

**87bSA** **$12.15** Approx. length 4½"

**65aS** **$7.35** Approx. length 4½"

**5cS** **$7.35** Approx. length 5¼"

**66S** **$8.60** Approx. length 3¼"





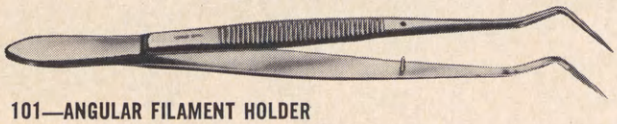
ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ANTI-WICKING AND ASSEMBLY TWEEZERS

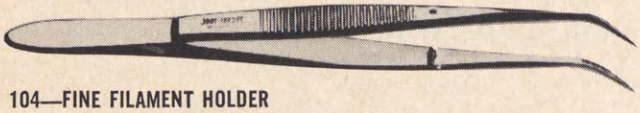
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

Specially adapted for electronics. TECHNI-TOOL offers the following tweezers and component holders. Excellent for bending and inserting fine wires and component leads into miniature circuits. **ALL STAINLESS**
TEFLON-coating (1½ mil) available at $1.85 each. Minimum order: 1 dozen. Heavier Coatings of Kynar, KEL-F, P.V.C. available upon request.
LARGE QUANTITY QUOTATIONS AND BLANKET ORDERS GIVEN SPECIAL CONSIDERATION.

**100—FILAMENT HOLDER**
**$2.25 ea.**

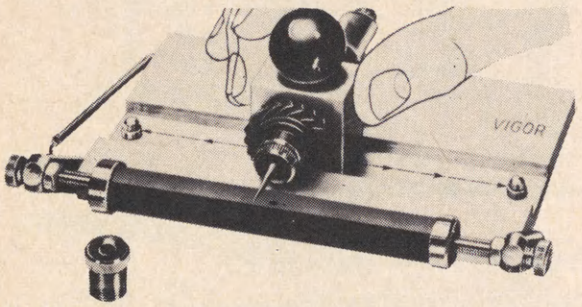


**101—ANGULAR FILAMENT HOLDER**
**$2.25 ea.**

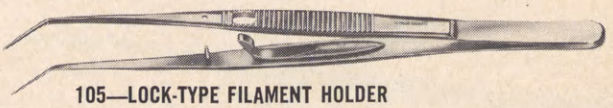


**104—FINE FILAMENT HOLDER**
**$2.25 ea.**

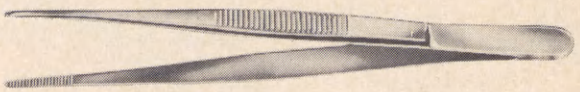
**109—SLOTTED FILAMENT HOLDER** Specially designed with grooved tips for micro-assembly and testing. Constructed of finest stainless steel, locking device eliminates strain on fingers.
**$3.75 ea.**



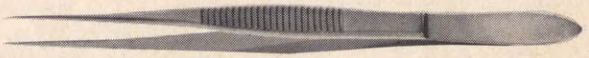

**TW-1000—TWEEZER SHARPENER** An important instrument—valuable on the repair bench of every mechanic—enables quick and precise resharpening on all regular style tweezers. This cleverly designed instrument is very simple to use—requires no special instructions . . . will pay for itself in no time!
**TW-1000** **$24.50**



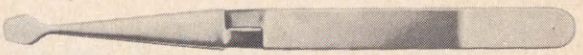
**105—LOCK-TYPE FILAMENT HOLDER**
**$3.50 ea.**



**106—HEAVY GRIPPER**
**$2.50 ea.**



**107—FILAMENT TWEEZER**
**$2.25 ea.**



**HEAT SINK** Solid non-fatiguing beryllium copper alloy. Excellent heat sink. Positive contact without corrosive detraction. Satin chrome finish.
**HS-5** **$3.35**

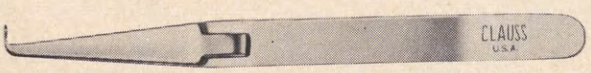
Special non-magnetic alloy. Satin chrome finish. Self locking and features box joint. Available needle point or square point—specify.
**B-50** (square point) 5″
**B-47** (needle point) 5″
**B-50** or **B-47** **$3.35** each

**51E $.80** **51F $.75** **51G $.60**

**HEAT SINK** Absorbs and dissipates heat during soldering, protects delicate components. 10 to a package. **No. 51G** for delicate work. Berylco 10, plastic handle. **No. 51F** Medium Duty Unit. Berylco 10, plastic coated handles. **No. 51E** Heavy Duty. Has copper jaw, spring steel, plastic covered handle.

## ANTIWICKING TWEEZERS (BERYLLIUM COPPER)

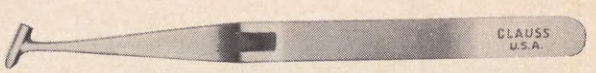
These tweezers are forged of solid non-fatiguing beryllium copper alloy and provide complete positive contact without corrosive detraction, while giving maximum thermal conductivity. Stock numbers gives correct AWG sizes wire the tools are made to fit. Conductor contact varies with wire gauge to meet N.A.S.A. Specs for Insulation Clearance.




"L" shaped head affords greater visibility, facilities work in tightly confined solder areas. Box joint. Satin chrome finish.

**AWG-Tweezers** **$6.50**

| Stock No. | Conductor Contact Lgth. | Stock No. | Conductor Contact Lgth. |
|---|---|---|---|
| AWG 18 | 1/16″ | AWG 26 | 1/32″ |
| AWG 20 | 3/64″ | AWG 28 | 1/32″ |
| AWG 22 | 3/64″ | AWG 30 | 1/32″ |
| AWG 24 | 3/64″ | | |




Bullet shaped head grips conductor, supports insulation. Box joint. Satin chrome finish.

**AW-Tweezers** **$7.20**

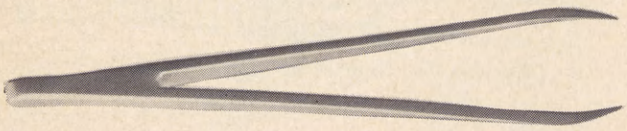
| Stock No. | Conductor Contact Lgth. | Stock No. | Conductor Contact Lgth. |
|---|---|---|---|
| AW 18 | 1/16″ | AW 26 | 1/32″ |
| AW 20 | 3/64″ | AW 28 | 1/32″ |
| AW 22 | 3/64″ | AW 30 | 1/32″ |
| AW 24 | 3/64″ | | |

# GLASSFILLED DELRIN WAFER TWEEZERS (USA)

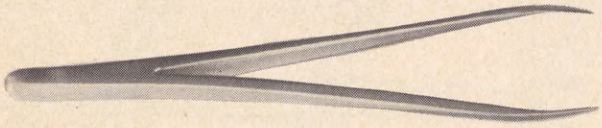
Non-magnetic, never rusts. Can be sterilized and has a gentle positive grip. Does not open in front when you apply extra pressure. Has a wide variety of uses and can be used on electrical material. Can pick up electronic components or any small parts. Withstands alcohol, acetone, etc.

**MADE IN U.S.A.**

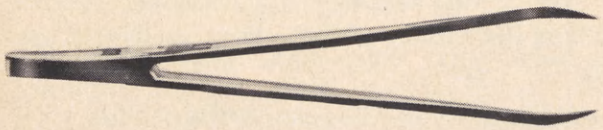
LARGE QUANTITY QUOTATIONS AND BLANKET ORDERS GIVEN SPECIAL CONSIDERATION.



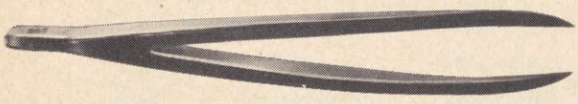
**#300** This tweezer was developed for picking up thin flat ceramics and wafers. Length: 4½".



**#400** Flat tipped and smooth all sides to prevent marring silicon, germanium and crystal wafers. Length: 4½".

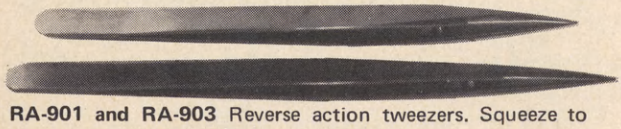


**#300-1** Flat points for very delicate work. Length: 4½".



**1A—CTFE TWEEZER** This tweezer is virtually unaffected by inorganic acids, alkalies or oxidizing agents, and most organic compounds.

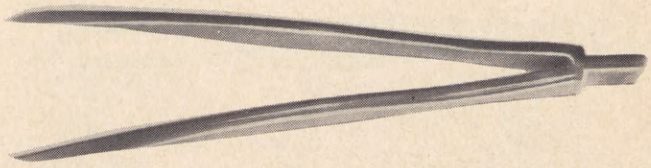
**4A** Designed for wafer handling and on jobs where strong acids are used. Can withstand temperatures up to 390°. Extra long (6½") with a special line-up added.



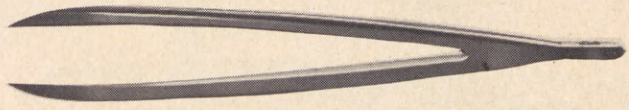
**RA-901 and RA-903** Reverse action tweezers. Squeeze to open. . .release to close. With controlled gripping force for micro-miniature work. Stainless steel.

**RA-901** . . . . . **$5.10 ea.**

**RA-903** Extra fine points.. . . . . **.5.10 ea.**



**#500** General purpose, assembly, tweezer. Length: 4".

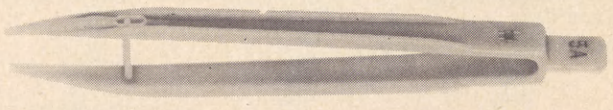


**#2A** Extra heavy with flat Points. Length: 4⅜".

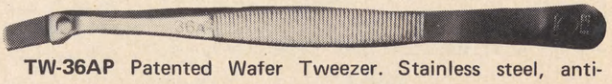
| | 1-10 | 11-100 | 101-500 | 500-1000 | 1000+ |
|---|---|---|---|---|---|
| 300 | $1.00 | $ .85 | $ .70 | $ .60 | $ .50 |
| 400 | 1.00 | .85 | .70 | .60 | .50 |
| 500 | 1.00 | .85 | .70 | .60 | .50 |
| 300-1 | 1.00 | .85 | .70 | .60 | .50 |
| 2A | 1.00 | .85 | .70 | .60 | .50 |
| 1A | 2.00 | 1.80 | 1.65 | 1.50 | * |
| 3A | 2.00 | 1.80 | 1.65 | 1.50 | * |
| 4A | 2.75 | 2.50 | 2.25 | 2.00 | * |
| 5A | 1.50 | 1.40 | 1.30 | 1.20 | * |

*Ask for Quotations

**3A—CTFE** Strong heavy blade tweezer for firm grip. Length: 4⅜".



**5A** For silicon slices and wafers. Will resist acetone, alcohol, etc. but not strong acids. Extra long (6½") with a special line-up pin added. The points are slightly serrated, 3/32" wide and very thin.



**TW-36AP** Patented Wafer Tweezer. Stainless steel, anti-magnetic and anti-acid. Stainless pin is shaped and positioned to eliminate wafer breakage. Delicate lower blade for easy pickup. . . . . **$7.65**

**TW-36APN** Nickel. . . . . **$7.65**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# SCISSORS - SPECIAL PURPOSE

**QUANTITY DISCOUNTS:** **1-11 Net** **12-24 10%** **25-49 15%** **50-100 20%** **101 + Ask for Quotations**

**TEC SCISSORS & NIPPERS** – Constructed from special analysis carbon and stainless steels. These scissors are hot drop forged and finished by hand to assure a fine finish and perfect cutting edges. All scissors are available in instrument quality stainless steels where indicated for use where contamination control is of prime importance. Serrations and Tec Insulation are available at an additional charge of **$1.00 each.** Large quantity quotations and blanket orders receive special consideration. Because of space limitations only the most popular models are shown. Other shapes and custom modifications are available.

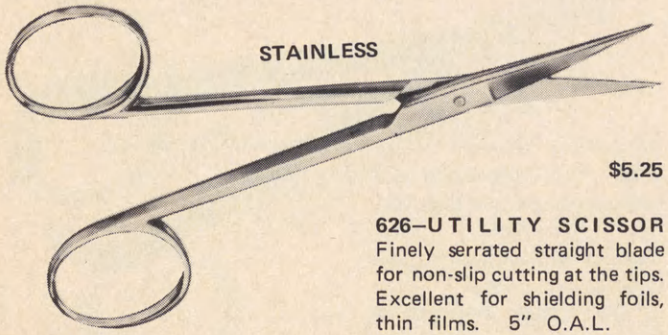
**$3.10**

**FL4½ "FLIPPER" THREAD WIRE CLIP** – **4½"** O.A.L. **1"** blade length. Replaceable blades of the sharpest, hardest steel available. Teflon coated housing is rustproof, attractive, self–lubricating, comfortable to the hand. Easy to adjust. Replacement blades available 6 pair per pack. Specify sharp or rounded safety points.

**BLS** Blades, sharp. . . . . **.$.75**
**BLR** Blades, round. . . . . **.$.75**

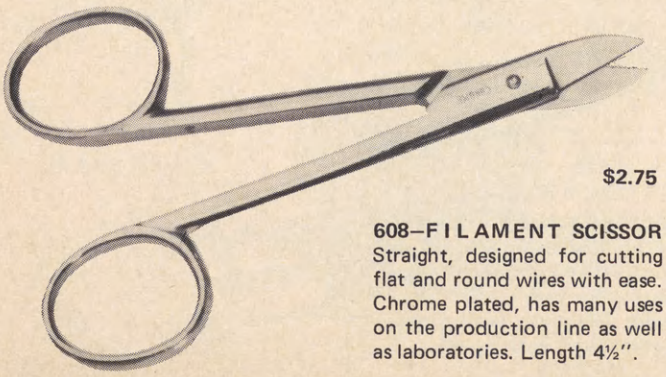
**$3.20**

**TC4½ THREAD/WIRE CLIP** **4½"** O.A.L. **1¼"** blade length. Hot hammer–forged of high carbon cutlery steel. Double plated chrome over nickel with stainless steel screw for maximum rust protection. For snipping threads light wire, harness ties.



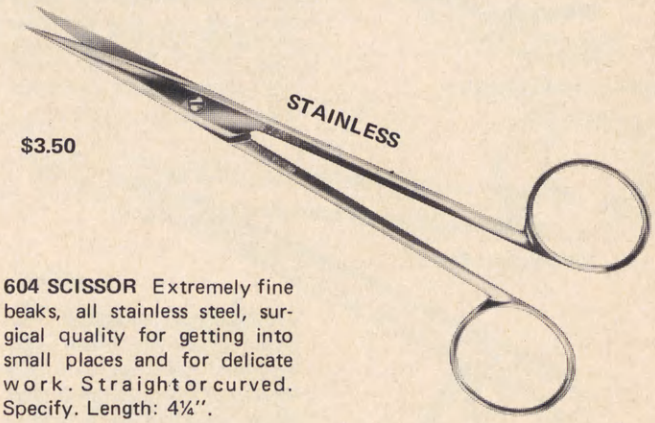

**$5.25**

**626–UTILITY SCISSOR** Finely serrated straight blade for non-slip cutting at the tips. Excellent for shielding foils, thin films. 5" O.A.L.



**$2.75**

**608–FILAMENT SCISSOR** Straight, designed for cutting flat and round wires with ease. Chrome plated, has many uses on the production line as well as laboratories. Length 4½".



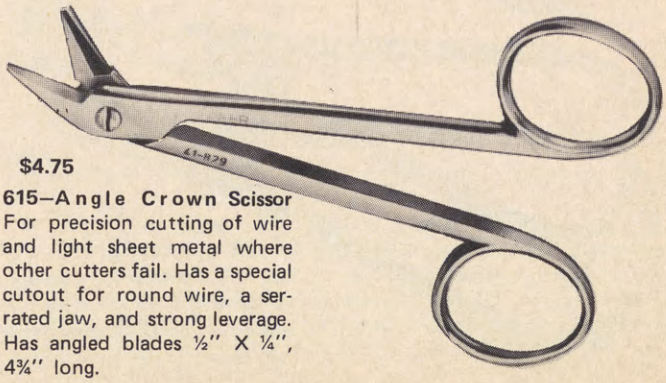

**$3.50**

**604 SCISSOR** Extremely fine beaks, all stainless steel, surgical quality for getting into small places and for delicate work. Straight or curved. Specify. Length: 4¼".

**$3.25**

**30–FILAMENT SCISSORS** Chrome plated. For cutting fine diameter wires close at terminal points and on terminal boards–ideal for use in printed circuit work and excellent for removal of excess insulation in tight spots.

**#636 DRAWER SCISSOR** Compound angles for reaching in deep circuit drawers. Stainless serrated blade.. . . . **$9.95**

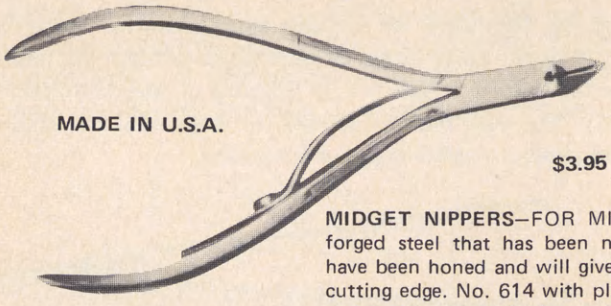


**$4.75**

**615–Angle Crown Scissor** For precision cutting of wire and light sheet metal where other cutters fail. Has a special cutout for round wire, a serrated jaw, and strong leverage. Has angled blades ½" X ¼", 4¾" long.

# SCISSORS-NIPPERS - GENERAL ASSEMBLY

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

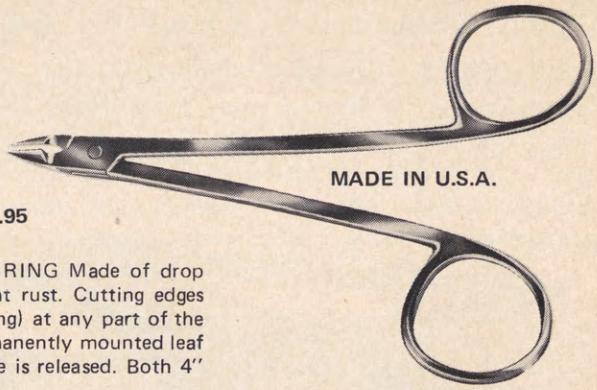


MADE IN U.S.A.

**$3.95**

**MIDGET NIPPERS**—FOR MICRO-MINIATURE WIRING Made of drop forged steel that has been nickel plated to prevent rust. Cutting edges have been honed and will give a snap-cut (no crushing) at any part of the cutting edge. No. 614 with plier handles, has a premanently mounted leaf spring that opens the jaws when the cutting pressure is released. Both 4" in length.

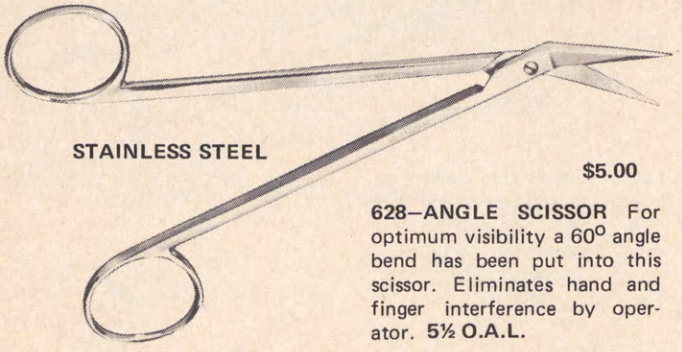
**614—PLIER HANDLE**



MADE IN U.S.A.

**$3.95**

**616—SCISSOR HANDLE**



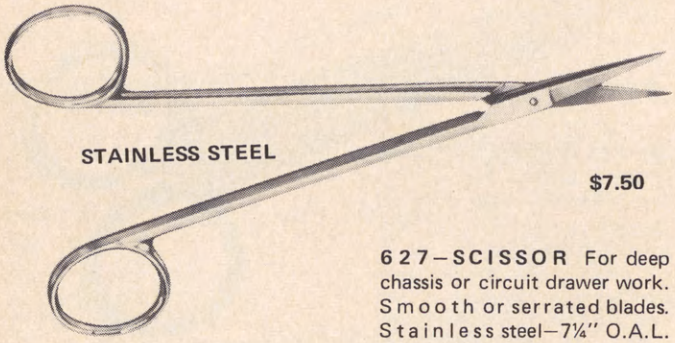
STAINLESS STEEL

**$5.00**

**628—ANGLE SCISSOR** For optimum visibility a 60° angle bend has been put into this scissor. Eliminates hand and finger interference by operator. **5½ O.A.L.**

**$5.50**

**602 HEAVY WIRE SCISSOR** All stainless steel surgical construction with large finger loops and serrated blade with special hooked beak for cutting wires to .020.



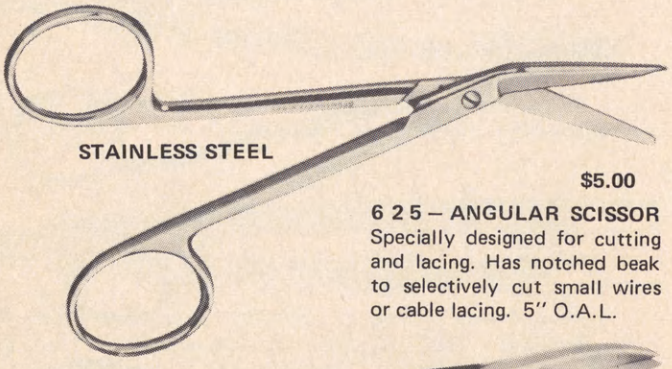
STAINLESS STEEL

**$7.50**

**627—SCISSOR** For deep chassis or circuit drawer work. Smooth or serrated blades. Stainless steel—7¼" O.A.L.

**$9.95**

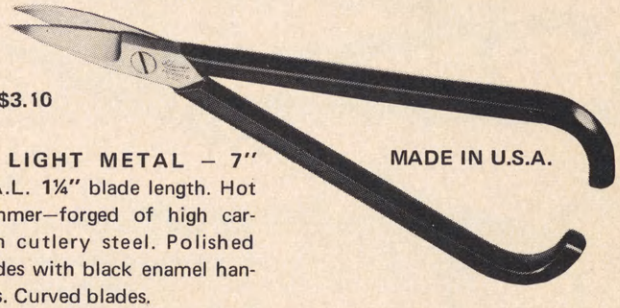
**610 MATRIX SCISSOR**—Right Angle. Designed to give maximum shearing power while allowing operator to reach inaccessible areas in electronic sub-assembly and production line work. Serrated beaks—stainless steel.



STAINLESS STEEL

**$5.00**

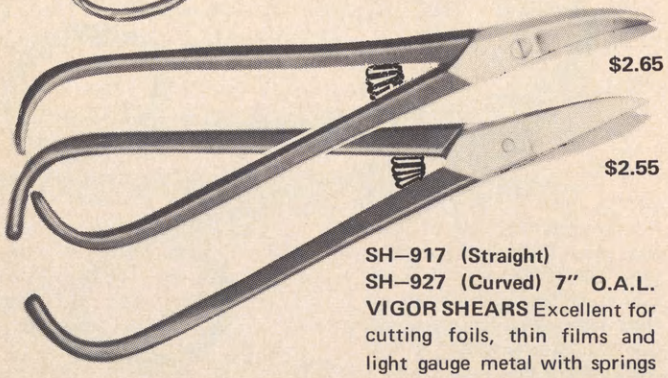
**625—ANGULAR SCISSOR** Specially designed for cutting and lacing. Has notched beak to selectively cut small wires or cable lacing. 5" O.A.L.



**$3.10**

MADE IN U.S.A.

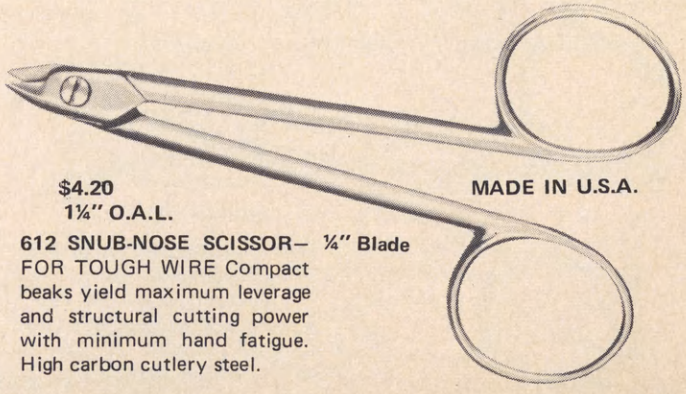
**57 LIGHT METAL — 7"** O.A.L. **1¼"** blade length. Hot hammer—forged of high carbon cutlery steel. Polished blades with black enamel handles. Curved blades.
**67** With straight blades. **$2.95**



**$2.65**

**$2.55**

**SH—917 (Straight)**
**SH—927 (Curved) 7" O.A.L.**
**VIGOR SHEARS** Excellent for cutting foils, thin films and light gauge metal with springs



**$4.20**
**1¼" O.A.L.**

MADE IN U.S.A.

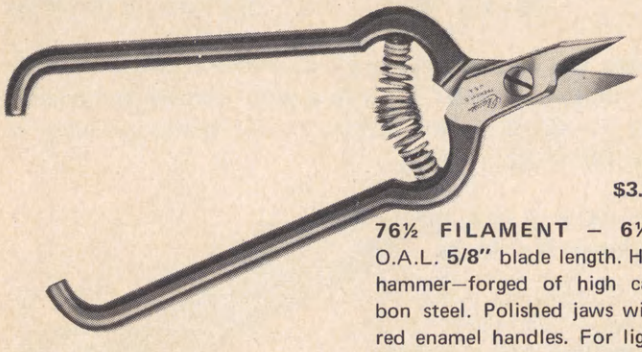
**612 SNUB-NOSE SCISSOR— ¼" Blade** FOR TOUGH WIRE Compact beaks yield maximum leverage and structural cutting power with minimum hand fatigue. High carbon cutlery steel.



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# SCISSORS - GENERAL ASSEMBLY (MADE IN USA)

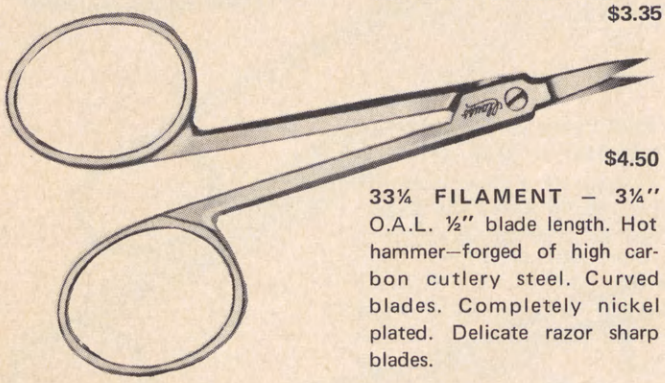
**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations



**$3.20**

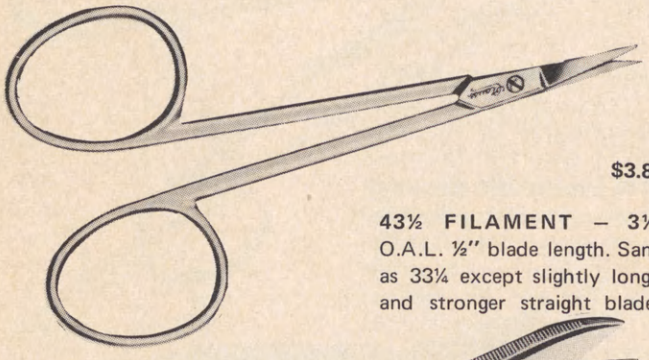
**76½ FILAMENT – 6½"** O.A.L. **5/8"** blade length. Hot hammer–forged of high carbon steel. Polished jaws with red enamel handles. For light wire cutting in difficult to reach areas.
**76½S** With serrated blade.

**$3.35**



**$4.50**

**33¼ FILAMENT – 3¼"** O.A.L. ½" blade length. Hot hammer–forged of high carbon cutlery steel. Curved blades. Completely nickel plated. Delicate razor sharp blades.



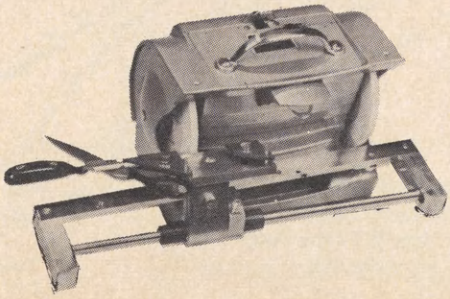
**$3.85**

**43½ FILAMENT – 3½"** O.A.L. ½" blade length. Same as 33¼ except slightly longer and stronger straight blades.

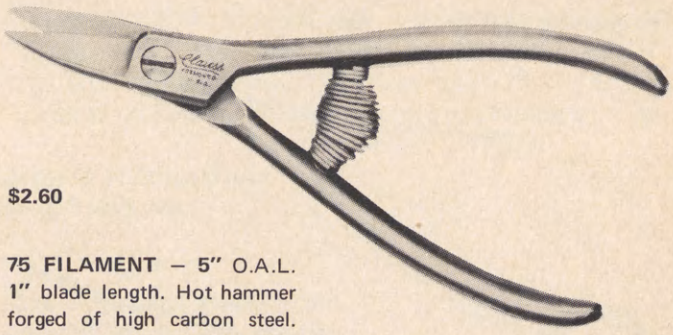
**$2.70**

**#925C ELECTRICIANS' – 5"**

O.A.L. **1¾"** blade length. Hot hammer–forged. Nickel plated. Cuts all medium gauge wires, insulation materials, harness ties with two stripping notches for 19 gauge and 23 gauge wires.

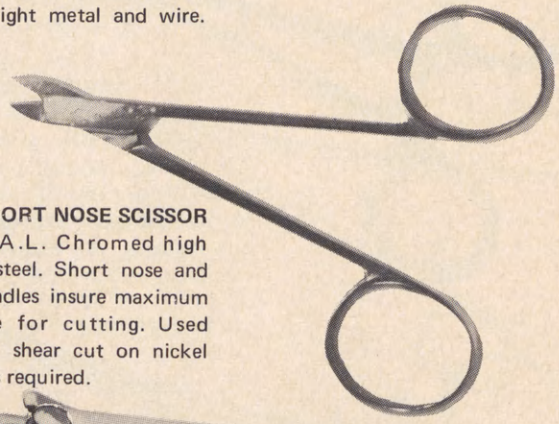


**Price $75.00**



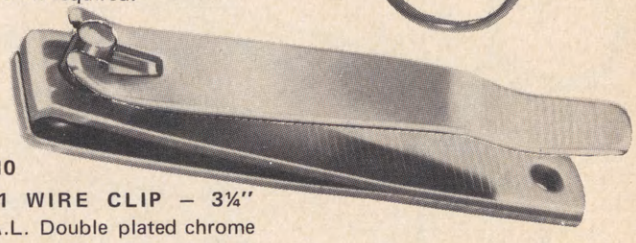
**$2.60**

**75 FILAMENT – 5"** O.A.L. **1"** blade length. Hot hammer forged of high carbon steel. Polished jaws and handles. For cutting light metal and wire.



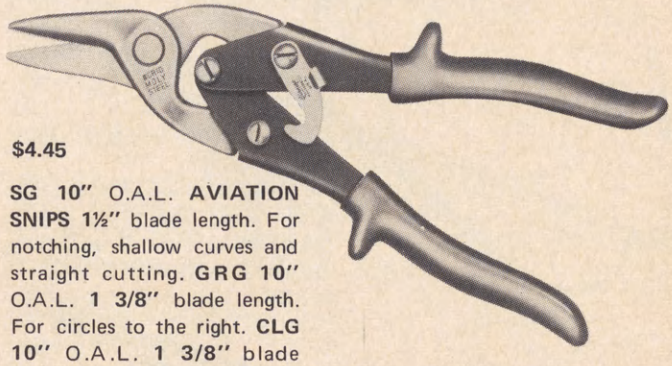
**$2.70**

**#274 SHORT NOSE SCISSOR 3½"** O.A.L. Chromed high carbon steel. Short nose and long handles insure maximum leverage for cutting. Used where a shear cut on nickel ribbon is required.



**$1.10**

**PD1 WIRE CLIP – 3¼"** O.A.L. Double plated chrome over nickel for maximum rust protection. Perfectly ground jaws and leverage action for flush cutting of nickel ribbon, and filament.



**$4.45**

**SG 10"** O.A.L. **AVIATION SNIPS 1½"** blade length. For notching, shallow curves and straight cutting. **GRG 10"** O.A.L. **1 3/8"** blade length. For circles to the right. **CLG 10"** O.A.L. **1 3/8"** blade length. For circles to the left. **specify.**

**THE NEW KNIFE AND SHEARS SHARPENER MODEL SS 2**

The Model SS2 sharpener is designed to do professional work with both shears and knives. The patented jig designed for sharpening shears and scissors of all kinds makes it possible to adjust so that the bevel put on the blades originally by the manufacturer can be exactly duplicated. By following the easy-to-understand instructions anybody with limited skill and practice will find it both quick and easy to do excellent sharpening.

# SMALL PARTS HOLDERS

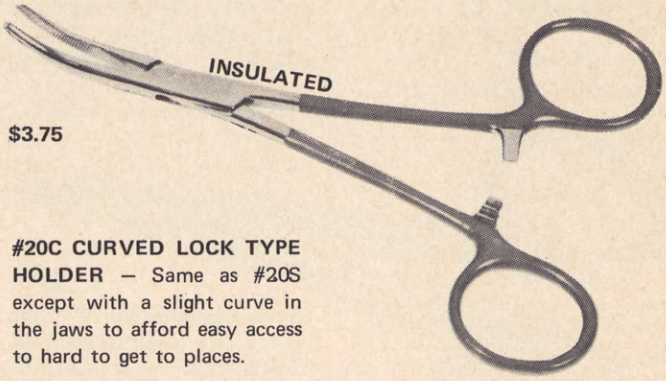
**QUANTITY DISCOUNTS:** 1 - 11 Net 12 - 24 10% 25 - 100 20% 101 + Ask for Quotations

All stainless construction. Box joints for added durability. Polished serrations to prevent component reject. Made by the worlds finest craftsmen. Designed specifically for use in areas where contamination is a problem. Cushion grips and carbide jaws available in some models. Special consideration given to large quantity orders and special modifications. Teflon Kynar P.V.C. coating available at **$1.85 each.**

**THE CHOICE OF AMERICAS FINEST COMPUTER MANUFACTURERS**
**ASK FOR OUR SPECIAL LARGE QUANTITY PRICES**

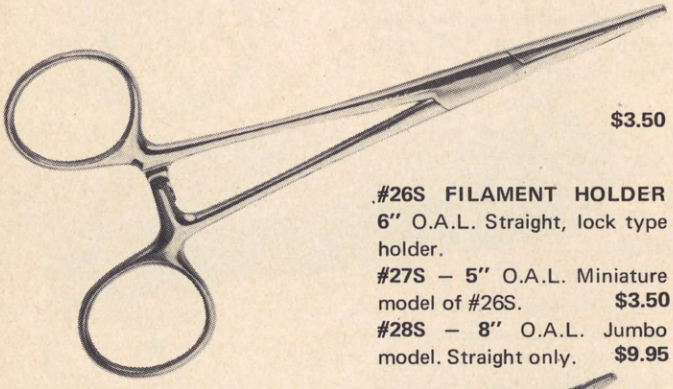
**$3.75**

**#20S STRAIGHT LOCK HOLDER – 6"** O.A.L. Stainless steel, slim serrated jaws. Has two position snap–lock. Excellent heat sink and clamp. Allows quick disconnect and reconnect for temporary connections.



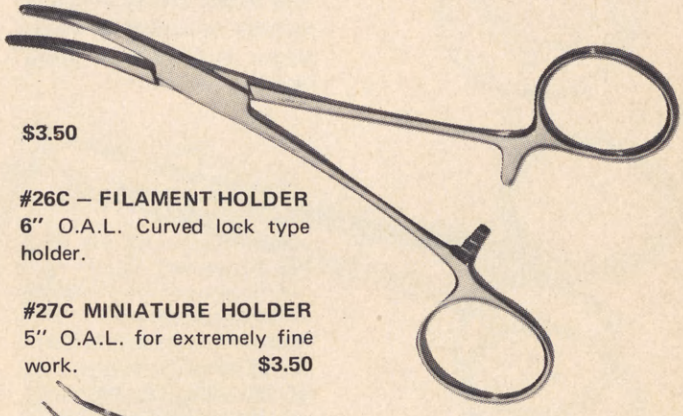

**$3.75**

**#20C CURVED LOCK TYPE HOLDER** – Same as #20S except with a slight curve in the jaws to afford easy access to hard to get to places.



**$3.50**

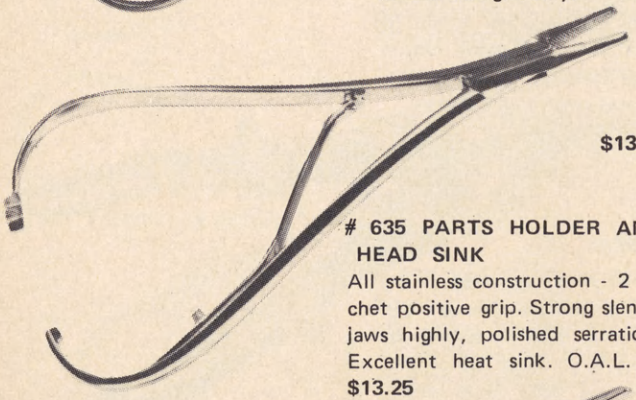
**#26S FILAMENT HOLDER 6"** O.A.L. Straight, lock type holder.
**#27S – 5"** O.A.L. Miniature model of #26S. **$3.50**
**#28S – 8"** O.A.L. Jumbo model. Straight only. **$9.95**



**$3.50**

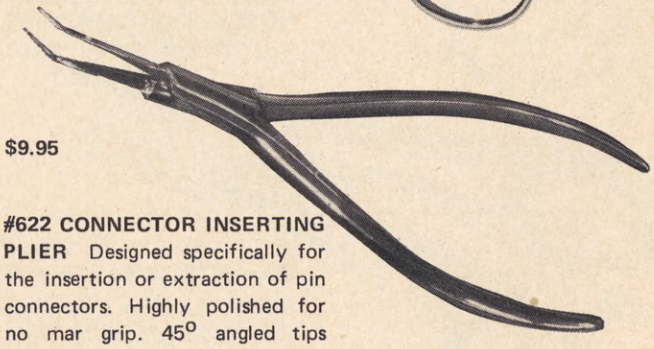
**#26C – FILAMENT HOLDER 6"** O.A.L. Curved lock type holder.

**#27C MINIATURE HOLDER** 5" O.A.L. for extremely fine work. **$3.50**



**$13.25**

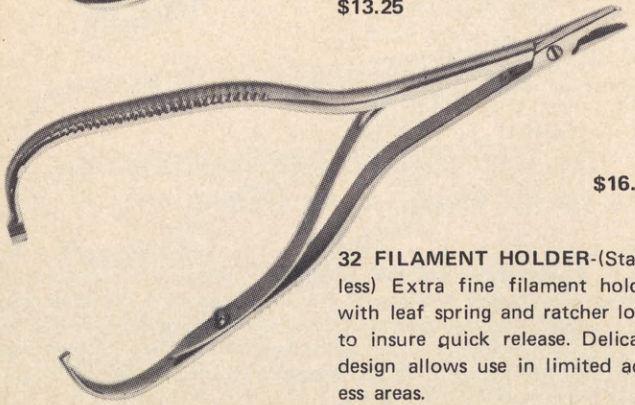
**# 635 PARTS HOLDER AND HEAD SINK**
All stainless construction - 2 ratchet positive grip. Strong slender jaws highly, polished serrations. Excellent heat sink. O.A.L. 6" **$13.25**



**$9.95**

**#622 CONNECTOR INSERTING PLIER** Designed specifically for the insertion or extraction of pin connectors. Highly polished for no mar grip. 45° angled tips

**# 623 STRAIGHT MODEL- $9.50**



**$16.25**

**32 FILAMENT HOLDER**-(Stainless) Extra fine filament holder with leaf spring and ratcher lock to insure quick release. Delicate design allows use in limited access areas.

**$13.25**

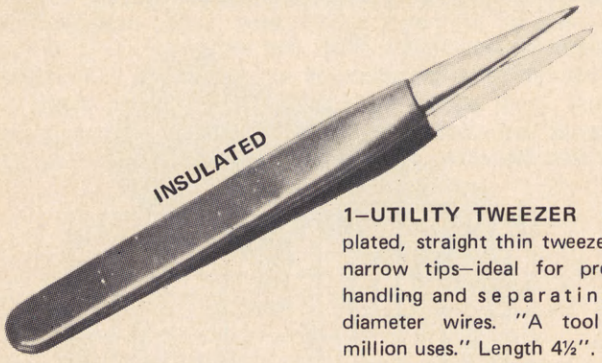
**# 300 LONG REACH GRIPPER**- Stainless Steel. Angled head to retrieve hardware from beyond the reach of other tools. 5" O.A.L.



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

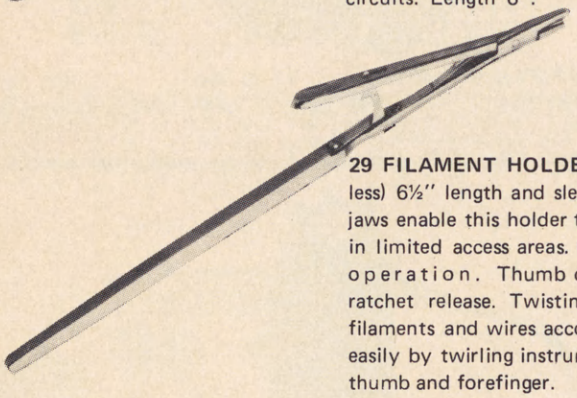
# SMALL PARTS HOLDERS

**QUANTITY DISCOUNTS:** 1 - 6 Net 7 - 12 10% 13 - 36 15% 37 - 72 20% 73 + Ask for Quotations

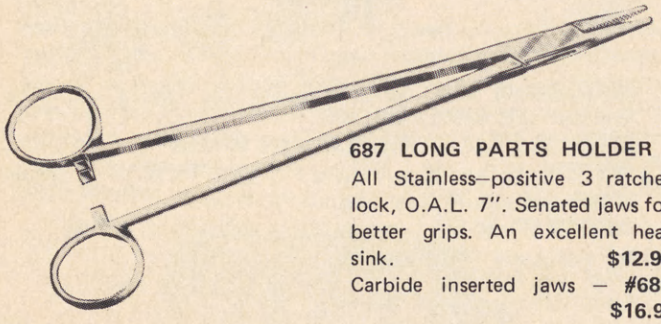



**1—UTILITY TWEEZER** A fine plated, straight thin tweezer with narrow tips—ideal for precision handling and separating fine diameter wires. "A tool of a million uses." Length 4½". **$1.50**

**4-FILAMENT HOLDERS** Made of finest stainless steel, curved, strong, serrated tips make this an excellent tool for bending and insertion of fine diameter wires and component leads in miniaturized circuits. Length 6". **$2.75**

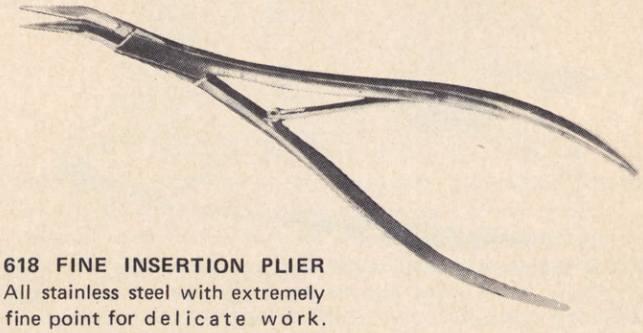


**29 FILAMENT HOLDER** (Stainless) 6½" length and slender 3/8" jaws enable this holder to be used in limited access areas. One hand operation. Thumb controlled ratchet release. Twisting of fine filaments and wires accomplished easily by twirling instrument with thumb and forefinger. **$16.50**



**687 LONG PARTS HOLDER** All Stainless—positive 3 ratchet lock, O.A.L. 7". Senated jaws for better grips. An excellent heat sink. **$12.95**
Carbide inserted jaws — **#688 $16.95**

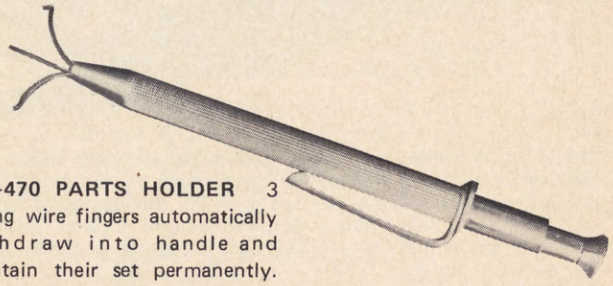
**112 ASSEMBLY PLIER**-2 Pins for perfect tip alignment where pressure may cause tips to slip. **$5.00**



**618 FINE INSERTION PLIER** All stainless steel with extremely fine point for delicate work. Complete with leaf spring. **$9.95**

**629 HOLDER AND SCISSORS** Eliminates the need for separate pliers & scissors. Combines the two into one handy instrument. Jaws are serrated for firm grip. For fine wires only - all stainless construction. O.A.L. - 5 1/2" **$14.95**

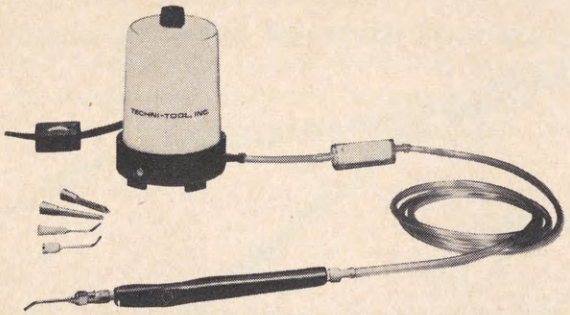
**632 CONNECTOR TOOL** 3 ratchet lock - All stainless construction - for pin removal .45° angled head. **$16.95**



**HO—470 PARTS HOLDER** 3 strong wire fingers automatically withdraw into handle and maintain their set permanently. Will pick up small parts such as semiconductor wafers, nuts, screws, etc. **$3.00**

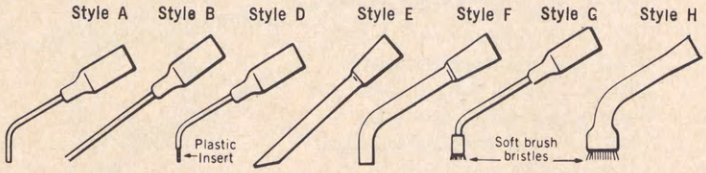
**5 WIRE DIRECTOR**—Special Stainless. Director with no nick notch to guide the finest wire. Very good for placing wires in "tight" places. **$4.00**

# VACUUM SYSTEMS

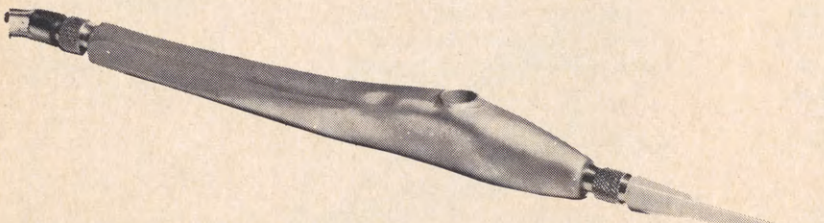



**No. 50 VACUUM GENERATOR SYSTEM**—Complete with vacuum generator, 4 ft. flexible tubing, inline filter to protect generator. Anodized aluminum probe with bypass hole, on/off switch, 5 assorted probe tips.
Add **$5.00** for 3 wire.

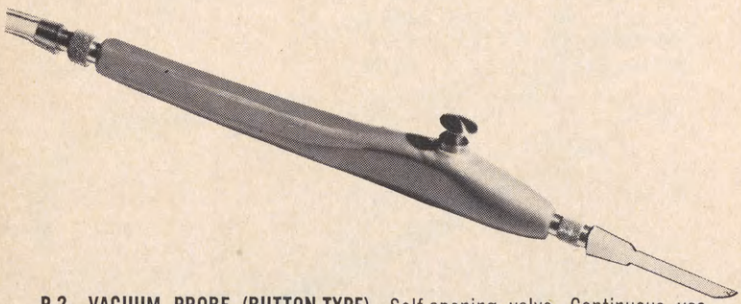
**1-5 $32.50 6-11 $29.95 12-24 $26.50 25 + Ask for Quotations**



**E-5—VACUUM PROBE (ECONOMY MODEL)**—Features by-pass hole for suction control. Anodized coating, serrated finger-tip portion on aluminum handle, and hard, durable tip and hose connection. Specially designed to serve as long-life, utility vacuum tweezer for production lines. Includes 6 ft. flexible tubing, tube connector and style E probe tip (see chart). **$5.75 ea.**



**P-1—VACUUM PROBE (BY-PASS)**—Valveless probe-by-pass hole is covered with finger to allow vacuum flow through probe tip. Releasing the finger opens by-pass and vacuum does not reach tip. Hand-contoured to minimize operator fatigue. Constructed of cast aluminum and anodized. Includes 6 ft. of flexible tubing, tube connector and style E probe tip. (see chart.) **$8.75** ea.,



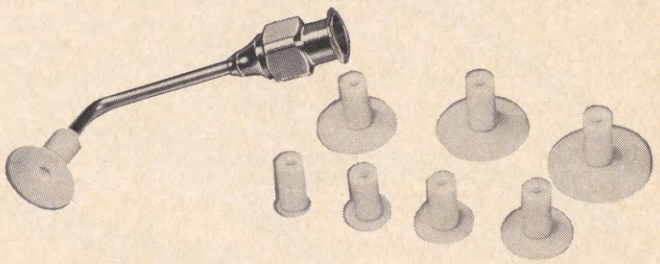
**P-2—VACUUM PROBE (BUTTON-TYPE)**—Self-opening valve. Continuous vacuum flow. Depress button to stop vacuum flow and vent front portion of tip. Wide range of uses in vacuum cleaning and parts handling. Hand-contoured to minimize fatigue. Constructed of cast aluminum and anodized. Includes 6 ft. of flexible tubing, tube connector and Style E probe tip. (See chart.) **$27.50** ea.,

Compact, yet rugged unit designed to handle delicate miniature parts. Ideal for multi-work station clean rooms, production lines and prototype laboratories. Plugs into standard 110-115 60 cycle A.C. line. Eliminates contamination and damage due to abrasion or chipping. Pump creates 14″ Hg Vacuum (125 cubic inches per minute air flow). Vacuum pickup is actuated by positioning fore-finger over the bypass hole. Lift finger slightly to release suction.

| Tip No. | I.D. | O.D. | Style | Mat'l of Hub | Metal Needle | All Plastic | List Price |
|---|---|---|---|---|---|---|---|
| 8 | .011 | .024 | B D | Plastic | | | $1.75 |
| 9 | .015 | .043 | B D | Metal | | | 2.00 |
| 10 | .023 | .038 | B D | Metal | | | 2.00 |
| 11 | .03 | .10 | B E | | | X | .90 |
| 12 | .06 | .12 | B E | | | X | .90 |
| 13 | .12 | .19 | B E | | | X | .90 |
| 14 | .03 | .10 | B F | | | X | 1.75 |
| 15 | .06 | .12 | B F | | | X | 1.75 |
| 16 | .12 | .19 | B F | | | X | 1.75 |
| 17 | .25 | .31 | B F | | | X | 1.75 |
| 20 | .007 | .016 | B A | | X | | 1.15 |
| 21 | .010 | .020 | B A | | X | | 1.15 |
| 22 | .013 | .025 | B A | | X | | 1.15 |
| 23 | .016 | .028 | B A | | X | | 1.15 |
| 24 | .020 | .032 | B A | | X | | 1.15 |
| 25 | .025 | .036 | B A | | X | | 1.15 |
| 26 | .033 | .050 | B A | | X | | 1.15 |
| 27 | .035 | .057 | B A | | X | | 1.50 |
| 28 | .045 | .064 | B A | | X | | 1.50 |
| 29 | .052 | .071 | B A | | X | | 1.50 |
| 30 | .070 | .095 | B A | | X | | 1.50 |
| 31 | .052 | .12 | G | Metal | X | | 2.25 |
| 32 | .06 | .21 | G | | | X | $3.00 |
| 33 | .12 | .31 | H | | | X | $3.00 |

**QUANTITY DISCOUNTS: 1 - 10 Net 11 - 50 10%**
**51 - 100 15% 101 - 500 20% 501 + Ask for Quotations**

**Complete work areas systems and custom made units available.**

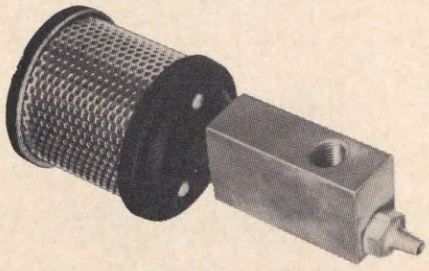


**TVC-1—VACUUM CUPS**—For contamination free handling of modules large wafers and similar larger items.
**TEFLON—$1.25** ea.—12 or more (can assort) **$1.10** ea.
**COMPLETE SET:** No. TVC-1, including 8 cups and No. 29 tip **$9.50**
**RUBBER—.90** ea.—12 or more (can assort) **.75** ea.
**COMPLETE SET:** No. RVC-1, including 8 cups and No. 29 tip **$6.50**
Both available in the following sizes:
9/16″, ½″, 7/16″, ⅜″, 5/16″, ¼″ & 3/16″, specify size(s).
Recommended for use with No. 29 tip.

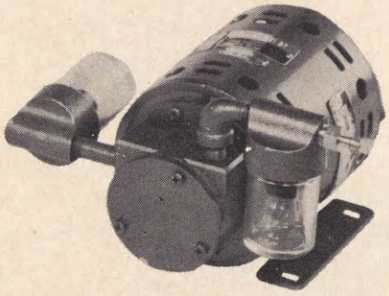
**P-3—VACUUM PROBE (NO BY-PASS)**—Handle has no valve, only a straight through vacuum passage. Used with Vacuum Transducer, Solenoid Valve and Foot Switch. Foot Switch turns air and vacuum on and off. Reduces air consumption. Recommended for vacuum cleaning. **$8.50** ea.,

# VACUUM SYSTEMS - SKIN PACKAGING UNITS

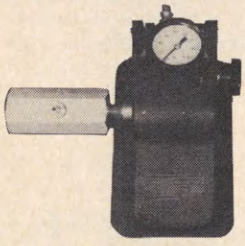
**QUANTITY DISCOUNTS AVAILABLE UPON REQUEST**



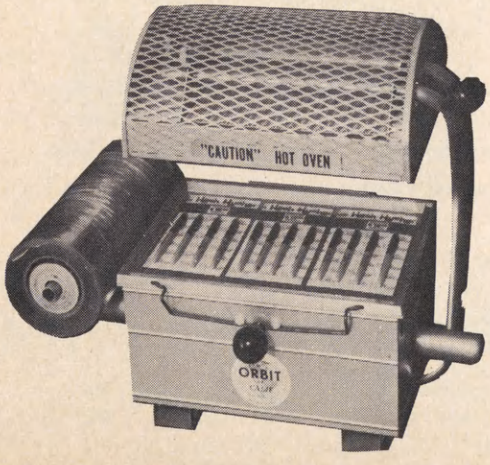
**VT-1—VACUUM TRANSDUCER**—Converts any available air source to vacuum. Constructed entirely of brass and will produce 20" Hg. vacuum and up to 1.5 cfm. vacuum flow. Attached muffler included. . . . **$27.50**



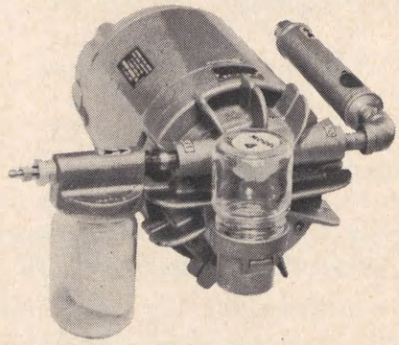
**VP-1—ELECTRIC OIL-LESS VACUUM PUMP**—This vacuum source is oil lubricated, with ¼ H.P. motor and will produce up to 27" Hg. and a vacuum flow of 2.4 cfm. Unit includes inlet filter, muffler and 3 wire cord. Can use foot switch. . . . . **$110.00**



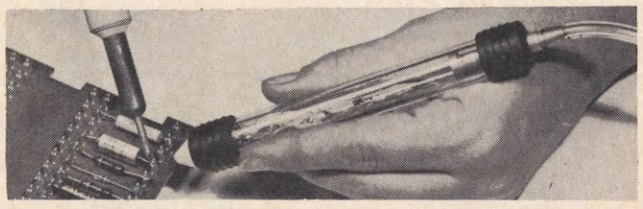
**PMFR-260 MECHANICAL UNIT** Complete with VT-3 Vacuum Transducer. No electrical connections required. Years of continuous service. No moving parts in vacuum source assures long operation without maintenance. Unit is completely assembled to base plate and tested. Portable and ready to operate instantly. Gives complete control for regulated vacuum. . . . . **$49.00**
**Filter System** . . . . . **$10.00**



**VENTURI BLOCK WITH THE BUILT-IN SILENCER** Efficient design enables this Venturi Block to produce a greater vacuum at a lower air consumption. Provides efficient and economical vacuum for transfer devices, automatic feeds, welding machines, holding fixtures and other automated equipment.
Porous Bronze Disc Silencer muffles noise of exhaust air effectively. It's permanent and easily removed for cleaning without disconnecting aspirator from air line. Aluminum Hexagon Body provides greater mounting flexibility. Light-weight, compact and corrosion resistant. **VT-3** 15" Hg. at 40 psi. . . . . **$15.00**



**VP-2—HEAVY-DUTY ELECTRIC VACUUM PUMP**—Vacuum source with 1/10 H.P. Motor will produce up to 20" Hg. and a vacuum flow of 1.5 cfm. Unit includes inlet filter, muffler and 3 wire cord. A foot switch can be used to turn pump on and off. . . . . **VP2—$125.00**



**BAZOOKA SOLDER GOBBLER**—Molten solder is pulled by vacuum through teflon tip into glass tube. A specially designed air baffle in exit fitting forces the solder to collect on inside of tube.
**SG-100** includes 2 teflon tips, brush, flexible tubing, 1/8-27NPT Tube Connector . . . . . **$16.95**

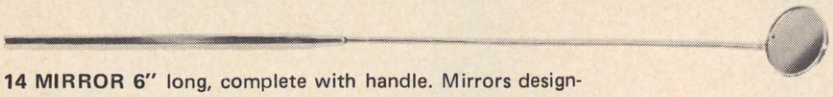
Tips and glass tubing can be purchased separately:

| | |
|---|---|
| Long extended tip . . . . . | **$5.25** |
| Short tip . . . . . | **4.50** |
| Glass tubes . . . . . | **2.50** |

**SA-1014 ORBIT VACUUM THERMO-FORMER**
Table top model with self-contained 3/4 h.p. vacuum unit. 1650 watt rod heating element. Full 9" x 13" forming area using standard 10" x 14" plastic sheet. Draws up to 1/8" thick plastic to maximum depth of 3 inches. Manual controls and feed. 1650 watt rod heating element. 120 volt power. 20 amps. Single phase. . . . . **$248.00**
Timer and roll feed attachment available at additional cost. Other models available.
Roll feed attachment (shown) optional . . . . . **$18.00**

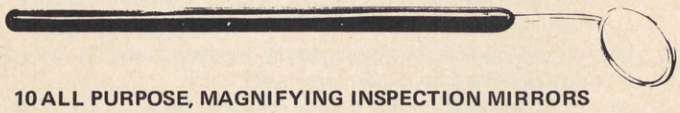
# INSPECTION MIRRORS

**QUANTITY DISCOUNTS:** **1 - 12 Net** **13 - 24 10%** **25 - 49 15%** **50 - 100 20%** **101 + Ask for Quotations**

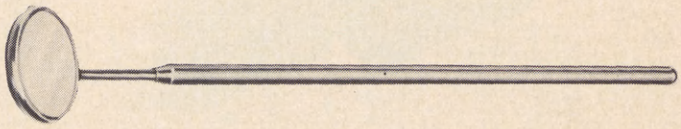


**14 MIRROR** 6" long, complete with handle. Mirrors designed for limited access areas. All Chrome, excellent for minute inspection work. Sizes from 3/8" diameter to 1" diameter.
**$2.25**

| NO. | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| MM. | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| IN. | 3/8 | 15/32 | 1/2 | 5/8 | 3/4 | 7/8 | 15/16 | 1 |



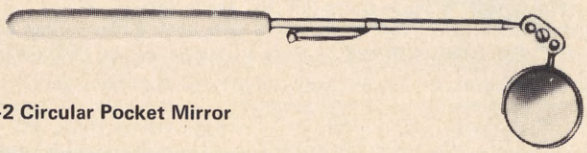
**10 ALL PURPOSE, MAGNIFYING INSPECTION MIRRORS**
**7¼"** O.A.L. Handy 1", magnifying mirror with 5½" insulated handle. For inspection in concealed locations. Used in operating circuits in checking relay and mechanical component operation. Available in 5/8", 7/8", 15/16", and 1". Specify plain or magnifying. **$1.25**



**12 – MIRROR** Chrome-plated mirror with detachable 6" long aluminum handle. Resists flex , excellent inexpensive inspection mirror. Available in the following sizes: 5/8", 3/4", 7/8", 15/16", 1", Plain and Magnifying-specify.
**$1.00**

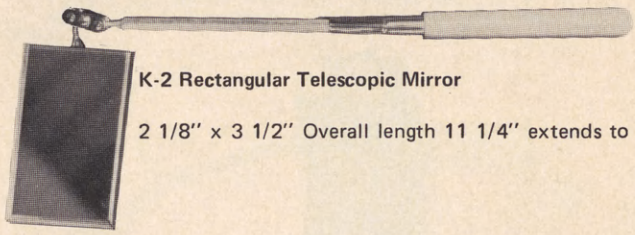
## BALL JOINT MIRRORS

All-angle ball joint mirrors with stainless steel mirror backs. Visual inspection of hidden areas. Double ball joint links swivel mirrors for viewing to 360°. Manufactured from tempered spring steel to move freely and hold desired position. Replaceable electrolytically plated copper - backed clear - view mirrors. Non-rotating inner hex rods prevent mirrors from swinging out of alignment. Insulating vinyl grip on all models. Extra long models available.



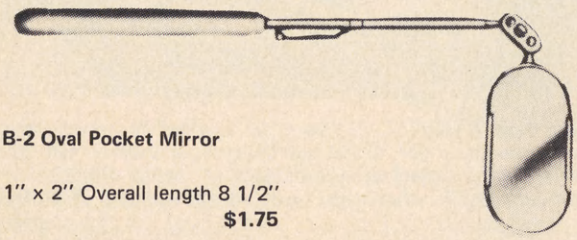
**A-2 Circular Pocket Mirror**

7/8" diam. Overall length 7 1/2"
**$1.50**



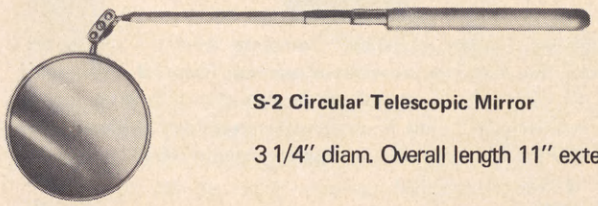
**K-2 Rectangular Telescopic Mirror**

2 1/8" x 3 1/2" Overall length 11 1/4" extends to 15 1/4".
**$2.75**



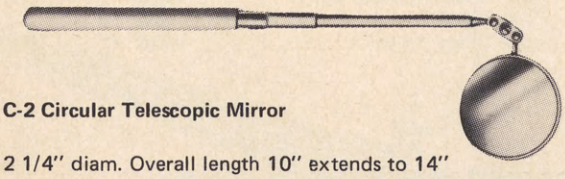
**B-2 Oval Pocket Mirror**

1" x 2" Overall length 8 1/2"
**$1.75**



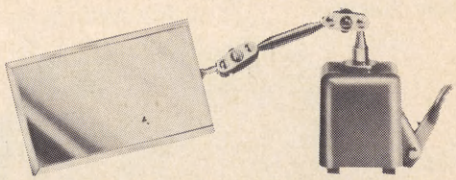
**S-2 Circular Telescopic Mirror**

3 1/4" diam. Overall length 11" extends to 15"
**$3.20**

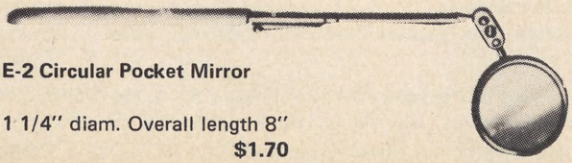


**C-2 Circular Telescopic Mirror**

2 1/4" diam. Overall length 10" extends to 14"
**$2.65**

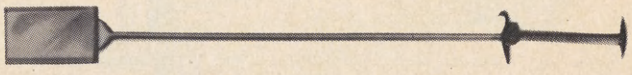


**MM-2** 90 lbs. magnetic pull. Thumb release for fast repositioning. Mounts in seconds. Replaceable 2 1/8" x 3½" polished mirror.
**$8.75**



**E-2 Circular Pocket Mirror**

1 1/4" diam. Overall length 8"
**$1.70**



**O–5 THUMB ACTION ADJUSTABLE MIRRORS**
Mirror angle adjusts and locks from 90° to 180°. One hand operation. 11" O.A.L. 1¼" x 1½". **$2.40**



**ALL PRICES SUBJECT TO CHANGE** **F.O.B. PHILADELPHIA**

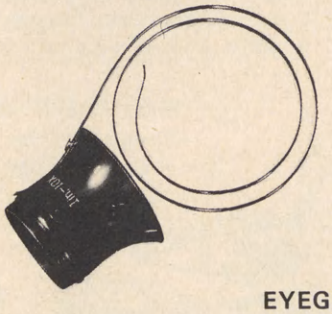
# OPTICAL INSPECTION MAGNIFIERS - EYE LOUPES

**QUANTITY DISCOUNTS:** 1 - 6 Net 7 - 12 10% 13 - 36 15% 37 - 72 20% 73 + Ask for Quotations

## LOUPES

Bausch & Lomb Loupes have been the standard for industry and watchmaking throughout the years. Lightweight, easy to wear, they are available in a complete range of powers from 2X through 18X.

| Catalog Number | Working Distance in Inches | Magnification | Lens Dia. | Price |
|---|---|---|---|---|
| **STANDARD** | | | | |
| 81-41-12 | 1 | 10 X | 1 | $2.75 |
| 81-41-70 | 1 | 10 X | 1 | 2.75 |
| 81-41-71 | 1½ | 7 X | 1 | 2.25 |
| 81-41-72 | 2 | 5 X | 1 | 1.75 |
| 81-41-73 | 2½ | 4 X | 1 | 1.75 |
| 81-41-74 | 3 | 3.3 X | 1 | 1.75 |
| 81-41-75 | 3½ | 3 X | 1 | 1.75 |
| 81-41-76 | 4 | 2.5 X | 1 | 1.75 |
| 81-41-77 | 5 | 2 X | 1 | 1.75 |
| 81-41-08 | ½, 1¼ | 8, 18 X | ½, 1 | 5.25 |
| 81-41-05 | 1½ | 4, 7 X | ½, 1 | 3.25 |
| **TRIPLE APLANATIC** | | | | |
| 81-41-13 | .1 | 10 X | .5 | 12.00 |



| Catalog Number | Working Distance in Inches | Magnification | Lens Dia. | Price |
|---|---|---|---|---|
| **STANDARD, WITH HEADBAND** | | | | |
| 81-41-06 | 1.5, 2.5 | 4, 7 X | .5, 1 | $3.75 |
| 81-41-09 | .5, 1¼ | 8, 18X | .5, 1 | 5.75 |
| 81-41-90 | 1 | 10 X | 1 | 3.25 |
| 81-41-91 | 1.5 | 7 X | 1 | 2.75 |
| 81-41-92 | 2 | 5 X | 1 | 2.25 |
| 81-41-93 | 2.5 | 4 X | 1 | 2.25 |
| 81-41-94 | 3 | 3.3 X | 1 | 2.25 |
| 81-41-95 | 3.5 | 3 X | 1 | 2.25 |
| 81-41-96 | 4 | 2.5 X | 1 | 2.25 |
| 81-41-97 | 5 | 2 X | 1 | 2.25 |

**81-41-99 Loupe Holder for Spectacles .25**

## RAY-BAN LOUPES

Work on highly-polished surfaces can be difficult due to glare which obscures detail and causes eyestrain. With a lens made of Ray-Ban glass, these loupes reduce glare to a comfortable level and increase contrast for better detail rendition.

| Catalog Number | Working Distance in Inches | Magnification | Price |
|---|---|---|---|
| **STANDARD** | | | |
| 61-41-56* | 1.5, 2.5 | 4, 7 X | $4.45 |
| 61-41-57* | 2.5 | 4 X | 2.75 |
| 61-41-66 | 1.5, 2.5 | 4, 7 X | 3.95 |
| 61-41-67 | 2.5 | 4 X | 2.25 |
| **EYEGLASS** | | | |
| 61-41-68 | 2.5 | 4 X | 4.00 |
| 61-41-69 | 1.5, 2.5 | 4, 7 X | 5.75 |

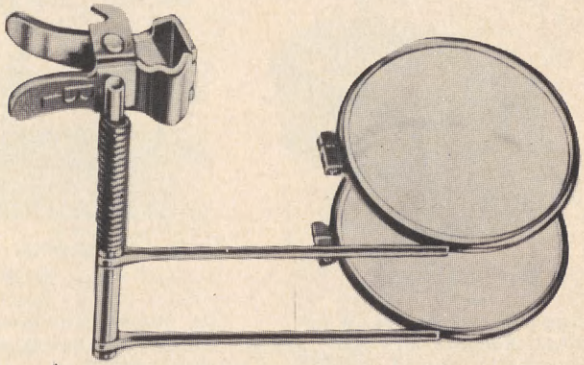
*With headband

## EYEGLASS LOUPES

Flips easily out of way — Attaches to eyeglass temple

Gold finish.....7 styles, powers 3 X to 7 X

| Catalog Number | Working Distance in inches | Magnification | Price |
|---|---|---|---|
| 81-41-17 | 3.3 | 3 X | $3.50 |
| 81-41-18 | 3 | 3.3 X | 3.50 |
| 81-41-27 | 2.5 | 4 X | 3.50 |
| 81-41-37 | 2 | 5 X | 3.50 |
| 81-41-47 | 1.5 | 7 X | 3.50 |
| 81-41-78 | 2.5, 1.5 | 4, 7 X | 5.25 |
| 81-41-79 | 3.3, 2 | 3, 5 X | 5.25 |

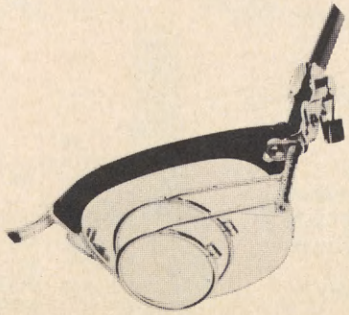


## BEHR SPECTACLE LOUPES

A wide range of Universal Loupes Model 55 for every purpose and taste. Easy to install and remove from wire, plastic or Zyl frames.

### DOUBLE LENS

| | Focus | Power | Price |
|---|---|---|---|
| EL-600 | 2½ x 1" | 4x, 10x | $7.25 |
| EL-601 | 2 x 1" | 5x, 10x | 7.25 |
| EL-602 | 2½ x 1 1/8" | 4x, 9x | 7.25 |
| EL-603 | 2½ x 1½" | 4x, 7x | 7.25 |
| EL-604 | 2½ x 2" | 4x, 5x | 7.25 |
| EL-605 | 3 x 2" | 3.3x, 5x | 7.25 |
| EL-606 | 3½ x 2" | 3x, 5x | 7.25 |
| EL-607 | 3½ x 2½" | 3x, 4x | 7.25 |



### SINGLE LENS

| | Focus | Power | Price |
|---|---|---|---|
| EL-501 | 1" | 10x | $4.75 |
| EL-500 | 1 1/8" | 9x | 4.75 |
| EL-500½ | 1½" | 7x | 4.75 |
| EL-502 | 2" | 5x | 4.75 |
| EL-502½ | 2½" | 4x | 4.75 |
| EL-503 | 3" | 3.3x | 4.75 |
| EL-503½ | 3½" | 3x | 4.75 |
| EL-504 | 4" | 2.5x | 4.75 |
| EL-505 | 5" | 2x | 4.75 |
| EL-506 | 6" | 1.5x | 4.75 |

# OPTICAL INSPECTION MAGNIFIERS - HAND HELD

**QUANTITY DISCOUNTS:** 1 - 3 Net 4 - 6 10% 7 - 12 20% 13 + Ask for Quotations

Your close inspection work will take on a new dimension of illuminated accuracy and convenience with a PIKE Flash-O-Lens magnifier. Accuracy and ease of use only possible through the unique PIKE concept of designing component parts to fit your specific inspection requirement. From portable battery models to electric shop microscopes, PIKE lets you choose the features that provide your most effective "close look". Features such as . . . . . .

**IT SPOTLIGHTS AS IT MAGNIFIES**

**WIDE SELECTION OF POWERS**
5 power model, 2" field of vision; 7 power model, 1" field of vision; 20 power model, ¼" field of vision; 40 power model, 7/32" field of vision.

**INTERCHANGEABLE PARTS**
Interchangeable lenses, housings, tubes, handles, etc. provide easy adaptability to varied applications.

**ACHROMATIC OR NON-ACHROMATIC**
Choose achromatic lens where constituent colors of image must be eliminated.

**FIXED FOCUS OR ADJUSTABLE**
Select between 5 and 7 power fixed focus lenses, or adjustable focus lenses.

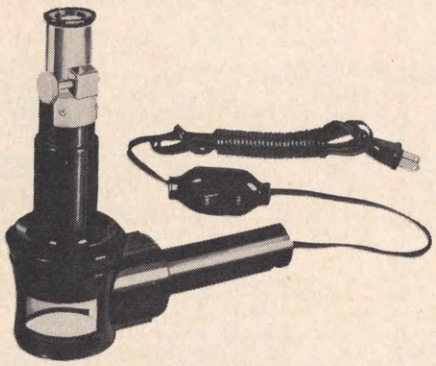
**BATTERY OR ELECTRIC**
Battery models for complete portability. . . . AC - DC plug in models for bench type use.

## "FLASH-O-LENS" MAGNIFIERS

- **Sturdy construction**
- **Finely corrected for sharpness**
- **High quality optical glass or triple achromatic lenses**

| | |
|---|---|
| 5X Battery Model (Non-Achromatic) | $ 9.85 |
| 5X Battery Model (Achromatic) | 29.35 |
| 7X Battery Model (Non-Achromatic) | 13.50 |
| 7X Battery Model (Achromatic) | 28.95 |
| Leather case (fits either) | 2.50 |

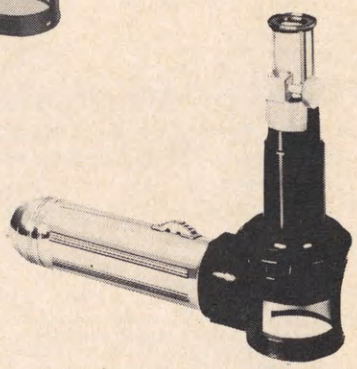
| | |
|---|---|
| 5X Electric Model (Non-Achromatic) | $11.95 |
| 5X Electric Model (Achromatic) | 31.70 |
| 7X Electric Model (Non-Achromatic) | 14.95 |
| 7X Electric Model (Achromatic) | 30.95 |



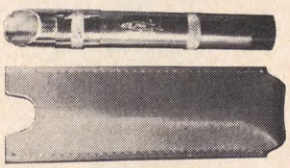
## "FLASH-O-LENS" MICROSCOPES

- **Bausch & Lomb achromatic lenses**
- **Finely corrected to eliminate all distortion and color**
- **40X Model has engraved scale permitting estimates down to 0.00025 inches.**

| | |
|---|---|
| 20X Electric Microscope | $ 95.35 |
| 40X Electric Microscope | 135.35 |
| 20X Battery Microscope | 92.80 |
| 40X Battery Microscope | 132.90 |
| Leather case (fits either) | 3.50 |



**CUT-OUT HOUSING**
For use on instruments on inspection surface, choose optional housing cut clear to bottom 240° around. **$2.50**



**PEN MICROSCOPE**
in satin nickel finish has ad justable focus, gives 40, 50 and 60X magnification. Fits in pocket like a pen. Leather case furnished. **$22.50**

**SL5**
**LEATHER CARRYING CASE**
Item SL5 designed for use with either 5, 7 or 10 power models. Item SL20 provides three compartment case for protective cushioning of 20 and 40 power units, ie. "Wide Field" and "Microscope" models.
**Leather Case SL5 $2.50**
**Leather Case SL20 $3.50**

Textile Plate PT1 $.89 | Henry Disc PD1 $12.00 | Battley Disc PD2 $12.00

**TEXTILE COUNTING PLATE**
Fits into bottom of housing on 5X models. Permits quick measurement of 1/8", ¼", and

**HENRY DISC/BATTLEY DISC**
Henry Disc has hairline across diameter. Battley Disc a series of concentric circles.

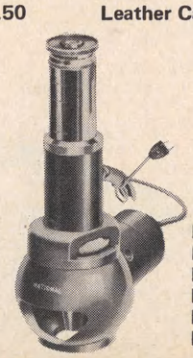
## ILLUMINATED MEASURING MICROSCOPE

PRECISION OPTICS • 27X TO 120X • 3 EYE PIECE • READ DIRECTLY TO .0005" or .005mm • MICROMATIC, VERNIER FOCUSING • PLUG-IN OR BATTERY USE

**INSTRUMENTS**

| | |
|---|---|
| **M-300** (27x to 40x. 5x EYEPIECE) | $49.50 |
| **M-301** (55x to 80x. 10x EYEPIECE) | $ 52.20 |
| **M-302** (82x to 120x. 15x EYEPIECE) | $ 52.95 |

Each instrument supplied complete with 10X: 0.25N.A. objective, 5X eyepiece, 110 volt light source, battery light source, slide clips, spare bulbs, fitted leather carrying case.



**ACCESSORY EYEPIECES—(Interchangeable)**

| No. | Huygenian Eyepiece | Reticle Division | Magnification | Field of View | Cost |
|---|---|---|---|---|---|
| M315 | 5X | .002" | 27X- 40X | .160" | $ 12.80 |
| M316 | 5X | .02mm | 27X- 40X | .160" | $ 12.80 |
| M317 | 10X | .001" | 55X- 80X | .130" | $ 15.50 |
| M318 | 10X | .01mm | 55X- 80X | .130" | $ 15.50 |
| M319 | 15X | .0005" | 82X-120X | .060" | $ 16.25 |
| M320 | 15X | .005mm | 82X-120X | .060" | $ 16.25 |



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# OPTICAL COMPARATOR - HAND HELD

**Quantity Discounts Available**

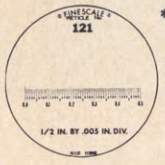
## FINESCALE–OPTICAL & INSPECTION POCKET MAGNIFYING COMPARATOR' RETICLES

Extreme accuracy is designed into this instrument. Low parallax . . . Tough, low expansion reticles . . . Low shrinkage plastic barrel bound in steel and aluminum . . . Only one scale per reticle—All combining to give a great value at low cost. Comparator and 4 pairs. Reticles (nos. 121, 122, 123, 124) in compact case.

Standard . . . . . **$19.50**

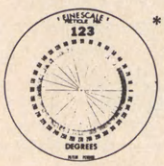
Your choice of Reticles . . . . . **$19.75**

**ADDITIONAL RETICLES** – (Supplied only in pairs.) One black-on-white and one white-on-black of same pattern, in plastic case **$2.00** per pair. . . . . SEE RETICLE CHART BELOW. Reproductions imperfect (*) indicates reticle is included in kit T–4R.




*** No. 121 – ½ in. By .005 in. Div.**
This is the most popular scale for mechanics, toolmakers, and engineers working with decimal measurements.

*** No. 122 – 15. mm By 0.1 mm Div.**
Tihs is the most useful scale for scientists, laboratory technicians, and others using the metric system.




*** No. 123 – Degrees.**
A full circle protractor with 1.° divisions. A generally useful scale.

*** No. 124 – ½ in. By 64ths.**
Open scale and fine lines permit very accurate measurements for those preferring fractional dimensions.

**No. 125 – Widths, Decimal inch sizes.**
Eighteen sies, .001" to .050". Used in checking the width of drawn or scribed lines; slots, etc. Compare with No. 140.

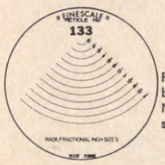
**No. 126 – Crossed lines at 90°.**
For quickly checking the squareness of small layouts and parts.

**No. 127 – Holes, Fractional inch sizes.**
Nine holes ranging from 1/128 in. to 1/8 in. in diameter. For checking holes, voids, flaws, etc.

**No. 128 – Holes, Decimal inch sizes.**
Eighteen sizes from .001 in. to 050 in. For checking holes in spray nozzles, gas jets, ball-point pens, instruments, watches, etc.

**No. 129–Counting Grid, 10 x 10 mm.**
Used in many biological sciences, for soil analysis, spray pattern studies, etc.

**No. 132 – Thread Pitch, NM series.**
For checking threads in the new "minature" series. See Reticle No. 135 for others.




**No. 133 – Radii, Fractional inch sizes.**
From 1/32 in. to 3/8 in. by 1/32 in. steps. See No. 139 for decimal inch sizes.

**No. 134 – Center Finder.**
For checking accuracy of centers and keyways of small shafts, layouts, etc.

**No. 135 – Thread Pitch, NF and NC series.**
All threads from smallest to 20 THDS/IN in both series. See Reticle No. 132 for pitch of new NM series.

**No. 136 – .300 in. By .002 in. Div.**
Simialr to No. 121, but with finer divisions for still more accurate measurements. By reading on the lines or between them measurements to .001" are read directly.

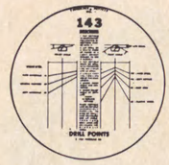
**No. 137 – Grid. .050" x .050" squares.**
First made for checking layouts and inspecting of electronic wiring boards (printed circuits).

**No. 139 – Radii, Decimal inch sizes.**
A companion to Reticle No. 133. This one has decimal inch sizes while the other has fractional inch sizes.

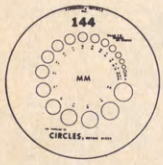
**No. 140 – Caliper, Decimal inch sizes.**
Somewhat similar to Reticle No. 125. Consider No. 125 as a feeler-gage and this one as a snap-gage for miniature parts and dimensions.

**No. 141 – Circles, inch sizes.**
Like No. 128 except open circles. Both fractional and decimal inch sizes.

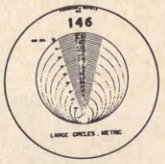
**No. 142 – Widths, metric sizes.**
Like No. 125 but with bars varying in width from 0.1 mm to 2.0 mm by 0.1 mm increments.




**No. 143 – Drill Points.**
For checking the sharpening of small drills. Shows correct point angle and lip clearance for drilling various materials.




**No. 144 – Circles, metric sizes.**
Open circles like No. 141 but metric sizes from 0.1 to 2.0 mm dia. by 0.1 mm increments.




**No. 146 – Large Circles, Metric**
Sizes from 1.0 to 10.0 MM by 0.1 MM div. See No. 144 for smaller ones.

**No. 147 – Scales at Right Angles, .005" Div.**
Preferred to No. 121 for some measurements.

**No. 149 – Azimuth and Bearing Circle**
1.0 degree div. Preferred over No. 123 for map reading.

**The following special Reticles are designed for inspection of instrumentation magnetic tape and heads. They are available in white-line only @ $2.00 each. Industry Special Set No. 30 contains all six Rericles.**

**Special Set #30 White Reticles for instrumentation magnetic tape and heads.**

Nos. 150, 152, 153, 154, 155 AND ONE PAIR No. 121 IN COMPACT BOX.

**$24.50**

**150 I.R.I.G. 7-14 track**

**151 I.R.I.G. 16 track digital**

**152 I.R.I.G. 31 track digital**

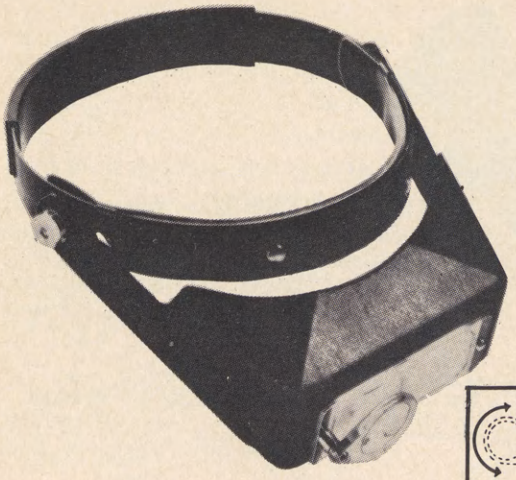
**153 In-Line 7-14 track**

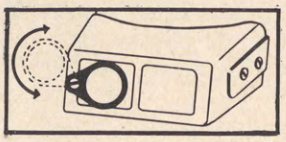
**154 IBM 7 track**

**155 IBM 9 track**

# OPTICAL INSPECTION MAGNIFIERS

**QUANTITY DISCOUNTS:** 1 - 11 Net 12 - 24 10% 25 - 48 15% 49 - 100 20% 101 + Ask for Quotations



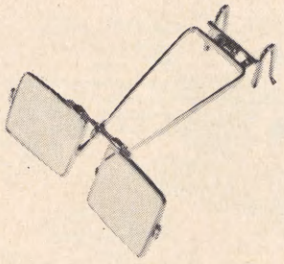


**OPTI-VISOR**—Can be raised out of the way of normal vision when not needed. Padded head band adjusts to shape of head. Weighs only 4 ozs. Used with or without eye glasses.

| Stock No. | Magnification | Range | Price |
|---|---|---|---|
| DA-2 | 1½X. | 20" | $14.75 |
| DA-3 | 1¾X. | 14" | 14.75 |
| DA-5 | 2½X. | 8" | 14.75 |
| DA-7 | 2¾X. | 6" | 14.75 |
| DA-10 | 3½X. | 4" | 16.75 |

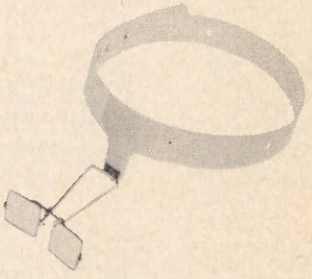
**OPTI-LOUPE ACCESSORY**—Easily attaches to either eye of any Opti-Visor and swings out of the way like a spectacle loupe. Adds extra power for monocular use—up to 6X magnification.

**DA-11** . . . . . Ea. $2.50



**HOOK-ON**
Hook-on loupes on your own spectacles eliminate need for a new prescription and extra pair of glasses. (Please specify model and range)
**$19.95**

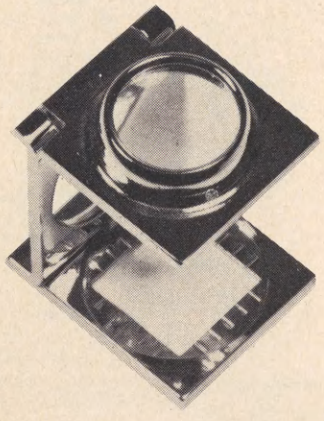
**INSPECTION HEADBAND LOUPE**
Three focal ranges of 7", 10", 12". Approximate respective magnification 3½ x 3X, 2X. A flip-up extension removes lenses from line of vision when not in use. Easily folded into a compact unit. Fits all head sizes from 6¾ Junior to 7⅞ Men's. Washable headband with noncorrosive metal parts. (Please specify model and range) **$25.00**



## LINEN TESTER

For salesmen, inspectors, printers, engravers, etc. Powerful 5X magnification. 2 plano-convex lenses provide large uniform image. Fixed focus, no adjustment necessary. Folds flat to pocket size—leather case included.

81-34-46 Linen Tester, 28mm dia., 5X **$15.00**



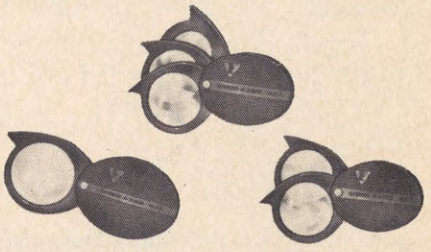
## ATTACHED CASE MAGNIFIER

2" diameter, 2 power ophthalmic quality lens. Attached case serves as both protector and handle. The standard glass for toolmakers. **81-26-14** . . . . . **$1.25**

## FOLDING POCKET MAGNIFIERS

Powers and combinations available from 3X to 20X.

| Cat. No. | Lens Size mm | Powers | Price |
|---|---|---|---|
| 81-23-44 | 23 | 4X | $2.95 |
| 81-23-45 | 23 | 5X | 2.95 |
| 81-23-53 | 35 | 3X | 3.50 |
| 81-23-54 | 35 | 4X | 3.50 |
| 81-23-63 | 35 | 3X to 7X | 4.25 |
| 81-23-64 | 23 | 4X to 9X | 4.25 |
| 81-23-65 | 20 | 5X to 12X | 4.25 |
| 81-23-67 | 17. 20 | 5X to 20X | 4.50 |

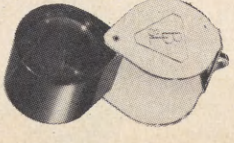


**CODINGTON**—Special construction of single lens gives good definition and wide field. Internal diaphragm aids in producing a fine image quality.

| Stock No. | Focus | Power | Price |
|---|---|---|---|
| 81-61-27 | 1½" | 7X. | $8.00 |
| 81-61-31 | 1" | 10X. | 8.00 |
| 81-61-35 | ¾" | 14X. | 8.00 |
| 81-61-41 | ½" | 20X. | 8.00 |
| 81-61-25 | 2" | 5X. | 8.00 |

## B & L POCKET MAGNIFIERS

Highly corrected. Excellent where greater magnification is required than in available with standard loupes. For aid to visual inspection procedures.



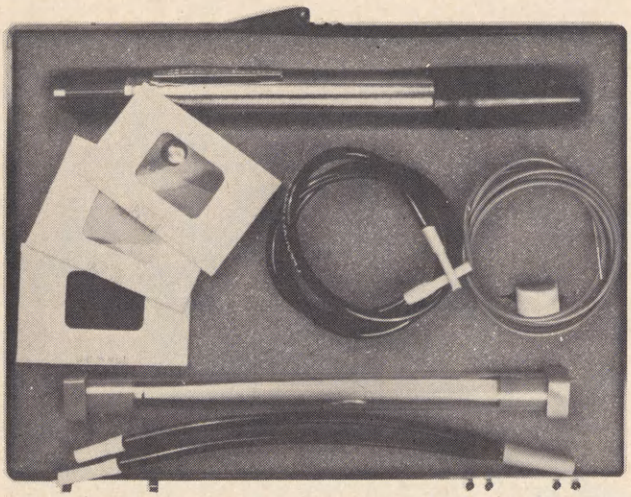
**HASTINGS TRIPLET** — Highly corrected for spherical and chromatic abberation, providing an exceptionally wide angle view.

| Stock No. | Focus | Power | Price |
|---|---|---|---|
| 81-61-68 | 1½" | 7X | $12.00 ea. |
| 81-61-71 | 1" | 10X | 12.00 ea. |
| 81-61-75 | ¾" | 14X | 12.00 ea. |
| 81-61-80 | ½" | 20X | 17.50 ea. |



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# OPTICAL INSPECTION MAGNIFIERS - MEASURING



6. Colored Filters. Three colored filters are supplied for conduct of color-mixing efforts.
7. Plastic Lens.
8. Light Source and Adapters. Battery operated source of light energy and adapters for coupling the various diameter bundles to the light source.

**FLEXIBLE OPTICS KIT**

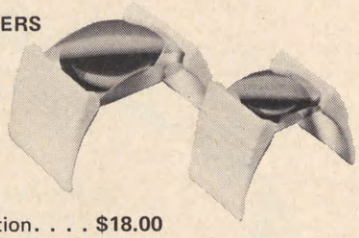
Your fiber optic experimental kit contains a carefully selected group of specialized fiber optic components designed to acquaint you with the principles and applications of this exciting new technology. . . . . **$36.00**

**KIT INCLUDES:**

1. Bundle of Loose Fibers. Located in clear plastic tube. This bundle contains the type of fibers used to make the other components of your kit. Each fiber is made of glass with a diameter of 0.0025".
2. Flexible Bundle. A 1/16" by 18" light pipe used for lighting inaccessible areas or for the transmission of information.
3. Shoestring Fiber. A single plastic fiber sheathed in colored plastic tubing. Small diameter, 0.020", and high flexibility make shoestrings very useful for conducting light to highly inaccessible areas.
4. Bifurcated Bundle. This "Y" shaped device is made of two separate bundles joined together at one end. Each bundle is called a branch while the section in which they are joined is called a trunk.
5. Image Block. This block is made of thousands of carefully aligned fibers for the purpose of carrying an image from a remote location to a viewer.

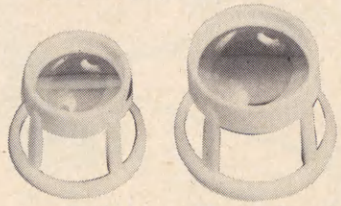
**RECTANGULAR STAND MAGNIFIERS**

These ideal fixed focus magnifiers produce a remarkable sharp distortion free image. Their large field of view affords easy comfortable viewing for examination and inspection.



**S-474** Lens 2¾" x 2¼" 3X Magnification. . . . **$18.00**

**S-472** Lens 4" x 3" 2X Magnification. . . . . **$23.00**



**ROUND STAND MAGNIFIERS**

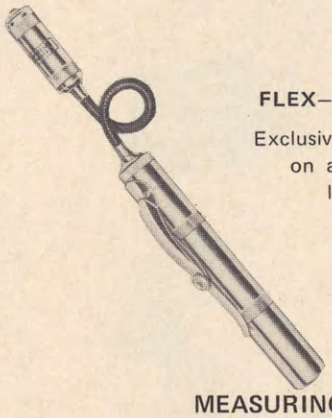
Particularly useful to graphic arts trade and fine use in practically every industry where a good sharp undistorted image is required.

**S-1023** Lens 38 mm diameter, 8X Magnification. . . . **$9.00**
**S-428** Lens 50 mm diameter, power 5X Magnification **$11.00**
**S-1023** Lens 38 mm diameter, 8X Magnification . . . . **$9.00**
**S-428** Lens 50 mm diameter, 5X Magnification . . **$11.00**

**UNIVERSAL MAGNIFIERS**

Powerful 2X 4½ diameter glass lens in plastic frame. Ideal for close work such as parts inspection. Worn on cord around the neck always ready for use. Leaves both hands free.

**V295** . . . . . **$3.50**



**FLEX–LITE**

Exclusive on-off head switch is easy to reach. Turn it on and off with one hand. A sure-grip, double lock pocket clip fastens securely. Leaves both hands free. Prevents loss. Flexible neck points light in desired direction. Bends and stays to the position you want.

**$4.95 ea.**

**MEASURING and INSPECTING MAGNIFIERS**

7 X Hastings lens, adjustable for exact focus. Clear plastic body admits available light. Scratch resistant photo metallic scales. **81-34-35-01** Complete kit with scales. . . . . **$36.00**

General Purpose Scale for measuring radii, angles, diameters, .005" up to .5", .1 millimeter to 10mm, and line thickness of .001", .002", and .003".

Metric Scale which will measure up to 20mm at .1mm intervals.
81-34-36 . . . . . **$7.00**

Inch Scale for measuring to .75" at .005" intervals.
81-34-37 . . . . . **$7.00**

360° Protractor Scale divided in single degrees.
81-34-39 . . . . . **$7.00**

# LAMP - MAGNIFIER COMBINATION UNITS

**QUANTITY DISCOUNTS:** 6 - 11 10% 12 - 23 20% 24 + 33 1/3% **Other Models Available**

**ROXTER–LITE MODEL 6480:**
Utility lamp for office and factory. Miniature high intensity illumination (45 foot candles at 12") for application where clear bright light is a must. Ideal for inspection and bench work. Magnetized base with 12" chrome gooseneck arm can be mounted on machines, tables, etc. Has own on–off switch. Gooseneck arm twists and turns to virtually any position. #93 bulb supplied. Separate power source can be remotely located for safety and space requirements. Plugs into standard 105/130 Volt AC outlet. Contains on–off switch and pilot light. Has jack plug–in arrangement. All metal construction, black finish. . . . . **$18.95**
**#6400** . . . . . **$10.00**
**Model 6400** Power supply for use with models 6482, 6483, 6484, 6486. . . . . **$10.00**

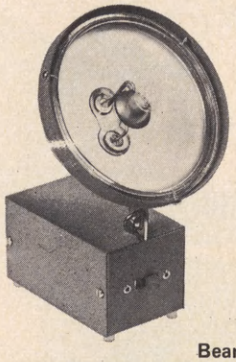
**ROXTER PRECISION WORK LAMP**
**Model 5900**
Professional high-intensity lamp for critical application requiring the ultimate in high-intensity; color temperature to 3300° Kelvin. 5 step switch provides varying intensities up to 7000 ft. candles. Arm swivels through 360° horizontally and vertically eliminating wire twist. Independent AC outlet on base. Separate on-off toggle switch. All metal construction. #1133 bulbs supplied. . . . . **$49.95**

**ENGINEER'S LAMP–MODEL 7500**

Designed to improve upon conventional hi-intensity lamps. It features a 24" long arm with a 4½" diameter reflector, and five friction joints to provide unlimited reflector positioning. Also has hi–lo intensity switch (150 watts–200 watts). Has patented plug–in arm that makes it possible to offer many accessories. #1133 bulb supplied. . . . . **$24.95**

**SUB–MINIATURE HI–INTENSITY LAMP MODEL 5979N**
Designed for use where space is at a great premium. Arm and reflector each swivel 180° and the arm extends to 10". Folds to a minute 6½" x 2" x 3½". Light intensity is 80 foot candles at 6". Up to 2000 foot candles for use with microscopes. Has weighted magnetic base. Weight (only 13 oz.) ideal for field servicing of office machines, computers, etc. 110 Volt AC, #55 bulbs supplied. . . . . **$13.85**

**ROXTER UTILITY LIGHT**
**MODEL 6490**
Designed for factory, workshop, and field service. Foot long flexible arm. Magnetic base equipped with rear hook for hanging to non–magnetic. High-intensity illumination equals 100 watts. Transformer located at end of line cord, for convenience and space saving. #93 bulb supplied. . . . . **$17.05**



**MINIATURE LOW VOLTAGE SPOTLIGHT**
The ideal portable spotlight for illuminating small areas from a remote distance; local lighting on machine tools. Has hi-lo intensity switch, 180° vertical beam adjustment. Provides a very narrow and/or very long beam of light. In folded position, measures 4 7/8" D x 4½" W x 4 3/8" H. Neutral wrinkle finish; bulb supplied.

| Model | Beam C.P. | Beam Spread Horiz. | Beam Spread Vert. | Price |
|---|---|---|---|---|
| 7152 | 60,000 | 5½° | 4½° | **$21.45 ea.** |
| 7153 | 45,000 | 9° | 4° | **$21.45 ea.** |
| 7154 | 2,300 | 25° | 30° | **$21.45 ea.** |

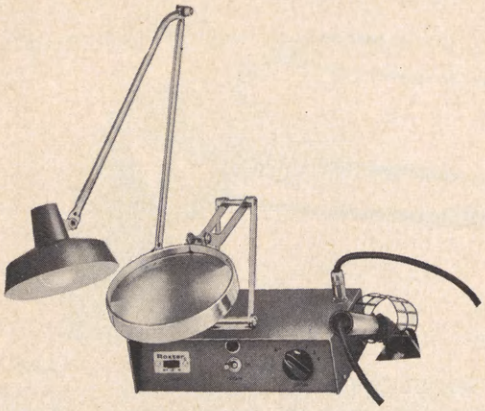
**SPECIFY**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# MINIATURE ASSEMBLY LAMPS

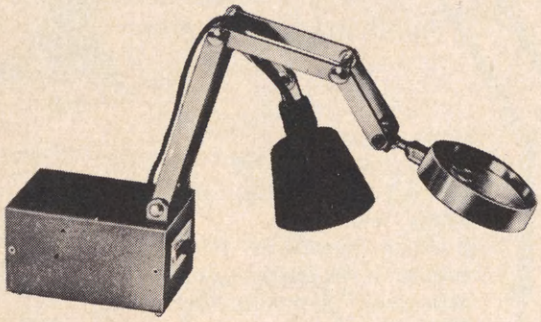
**QUANTITY DISCOUNTS:** 1-5 Net 6-11 10% 12-23 20% 24 + 33 1/3% **Larger quantity quotations on request.**



**THE STEREO MAGNIFIER Model 7166**

A quality magnifier and hi-intensity lamp combination that provides up to a full 48 square inches of viewing area and the equivalent of 300 watts of pure white light. Optically ground lens is set in a metal frame which can be rotated a full 360° in the vertical plane. Swing-away arm has 3 joints for maximum versatility and accuracy of horizontal lens positioning. Arm can be raised to a maximum working height of 15". A dual hi-intensity lamp with independent hi-lo switches and flexible arms provide the proper lighting for critical applications where magnification is needed. #93 bulbs supplied.

| Model | Lens | Power | Lighting | Price |
|---|---|---|---|---|
| **7166** | 6" x 6" | 3x | Dual Hi Int. Lamp | **$119.45** |
| **7168** | 6" x 8" | 2½x | Dual Hi Int. Lamp | **134.45** |
| **7066** | 6" x 6" | 3x | None | **94.95** |
| **7068** | 6" x 8" | 2½x | None | **109.95** |



**MODEL 6483:**

Probe light designed for use in small restricted areas. 1,000 foot candle intensity at bulb. 12" long flexible arm will fit into 9/16" diameter opening. #1891 bulb supplied. **$6.95 ea.**

**MODEL 6484:**

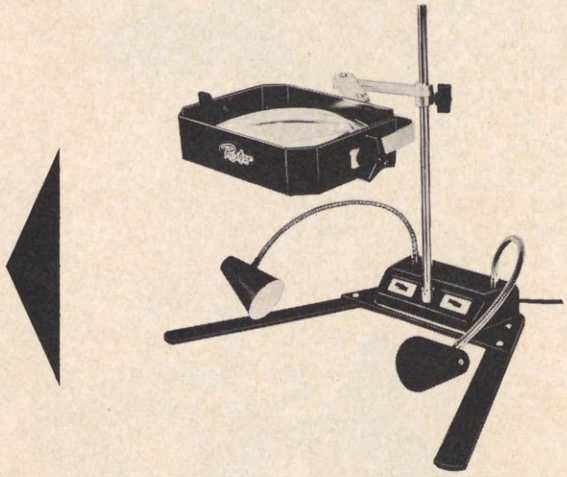
Spotlight contains 15—watt spot bulb for focusing on object some distance away. Swivels vertically and horizontally. Has on-off switch magnetic base; maximum beam candle power of 1,120. #15R14SC/SP bulb supplied. Can also use #93 bulb for flood lighting. **$9.95 ea.**

**MODEL 6482:**

Magnifying lens combined with high intensity illumination. Flexible arm with 2x magnifier. Magnetic base. #93 bulb supplied. **$9.95 ea.**

**SOLDERING WORK STATION, MODEL 5920**

Three essential tools needed for soldering sub—miniature components and sub—assemblies. Hi—intensity lamp has a folding arm and a two—way swivel reflector which can be set in any desired position to properly illuminate the work. Hi—low switch provides two intensity levels (equivalent to 150 and 200 watts). 4½" diameter optically ground lens has a 2x magnifier, mounted on an adjustable folding arm. 6 Volt, 25 watt transformer type soldering iron protects delicate components against line voltage leak. It can be set at four different heat levels (540° to 1080°). Pilot light indicates when iron is on. 110 Volt convenience outlet is located at the rear of the unit. #1133 bulb supplied. **$79.50 ea.**



**ROXTER LAMP WITH MAGNIFIER Model 7174**

All purpose lamp with precision ground optical magnifier with arm extending to 12". Lens tilts back when use as a lamp is desired. Hi-lo intensity switch. Compact, lightweight, functional, will hang, stand or mount anywhere. Plugs into standard 110V, AC outlet. Three #1133 bulbs supplied with lamp. All metal construction. Floor stand available.

| Model | Lens | Power | Price |
|---|---|---|---|
| **7174** | 2½" dia. | 5x | **$27.45** |
| **7175** | 2½" dia. | 2x | **24.95** |
| **7176** | 4½" dia. | 2x | **29.95** |

6483

6484

6482

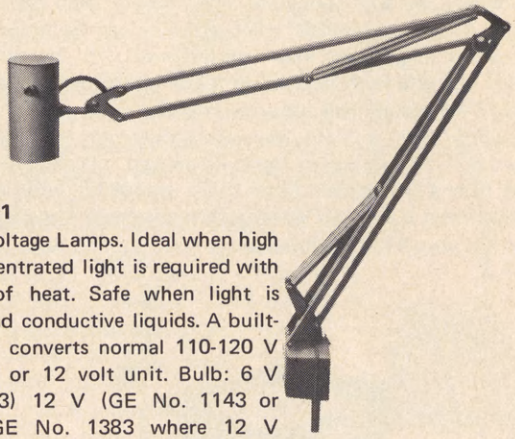
**FLOOR STAND**

Adjustable from 32" to 62" height. Base legs removable and self-leveling. Ideal for either fixed or portable applications. Stand includes mounting platform. **$19.95**

Available for following models: 5900, 7152, 7153, 7154, 7174, 7175, 7176. Order by (model number) FS.

# LUXO ASSEMBLY LAMPS AND MAGNIFIERS

**QUANTITY DISCOUNTS:** 1 Net 2-5 15% 6-12 25% **In grey or black with bulbs (chrome extra).**

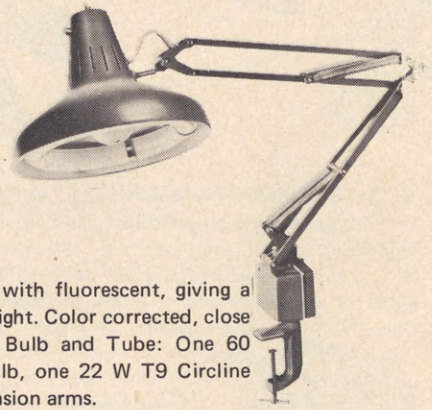


**MODEL LVT-1**
LUXO Low Voltage Lamps. Ideal when high intensity concentrated light is required with a minimum of heat. Safe when light is required around conductive liquids. A built-in transformer converts normal 110-120 V power to a 6 or 12 volt unit. Bulb: 6 V (GE No. 1133) 12 V (GE No. 1143 or 1141). Use GE No. 1383 where 12 V reflector lamp is desired. 2 extension arms.

**LVT-1.** 45" reach . . . . . **$38.35**
**LVT-2.** 30" reach . . . . . **$38.35**

**MODEL LB-1**
Designed particularly for use in shops, and laboratories, where work area must be well illuminated to maintain efficient and safe operation. Strong aluminum alloy shade. Disposable inner reflector "LB." Bulb: 40 W I.F. recommended. 2 extension arms. GREY ONLY

**LB-1** 45" reach . . . . . **$24.25**
**LB-2** 30" reach . . . . . **$24.25**



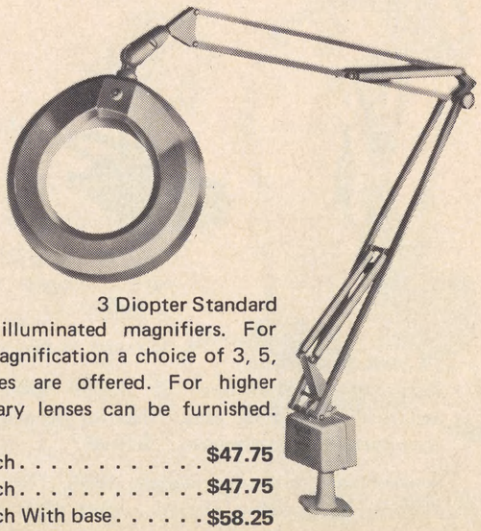
**MODEL LC-1**
Combines incandescent with fluorescent, giving a harmonious balance of light. Color corrected, close to quality of daylight. Bulb and Tube: One 60 W I.F. Incandescent bulb, one 22 W T9 Circline fluorescent tube. 2 extension arms.

**LC-1** 45" reach . . . . . **$34.75**
**LC-2** 30" reach . . . . . **$34.75**
**LC-2FE** 30" reach Base included. . . . . **$45.25**

**MODEL BS-1**
**B-1 w/CLASSIC SHADE**
**BS-1 w/FLAIR SHADE**
**LUXO "BALANCO"**
It adjusts instantly, by fingertip control to any position. It will retain its position regardless of the movement of the drafting table.

**BS-1 or B-1** . . . . . **$38.65**

**SEE-EASY** Color-corrected bulb to minimize glare. Filters most infra-red and ultra-violet rays.
Fluorescent. . . . . **$9.95** Incandescent . . . . . **$2.95**



**MODEL LFM-1** 3 Diopter Standard
LUXO fluorescent, illuminated magnifiers. For varying degrees of magnification a choice of 3, 5, or 10 diopter lenses are offered. For higher magnification, auxiliary lenses can be furnished. 2 extension arms.

**LFM-1** 45" reach . . . . . **$47.75**
**LFM-2** 30" reach . . . . . **$47.75**
**LFM-2FE** 30" reach With base . . . . . **$58.25**

**MODEL L-1**
Special LUXO classic shades, designed for greater light output and efficient, cool operation. Provisions for inner reflector "L". Bulb: 60 W I.F. recommended. 2 extension arms.

**L-1** 45" reach. . . . . **$26.50**
**L-2** 30" reach . . . . . **$26.50**
**L-101** 45" reach Dual-Cool Shade and concealed springs. . . . . **$28.50**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# LUXO ASSEMBLY LAMPS AND MAGNIFIERS

**QUANTITY DISCOUNTS:** 1 Net 2-5 15% 6-12 25% 13 + Ask for Quotations *Supplied w/bulbs and choice of A, B, or C Base.

**MODEL FL-1**

Combines the LUXO flexible arm with a uniquely designed fluorescent shade and inner reflector. Ruggedness of construction gives rigidity to lamp holders. Lamps: Two 18" 15 W T8 Tubes. FL diffuser reduces glare (optional).

**FL-1** 45" reach . . . . . **$34.75**
**FL-2** 30" reach . . . . . **34.75**
**FL-2FE** 30" reach With base . . . . . **45.25**

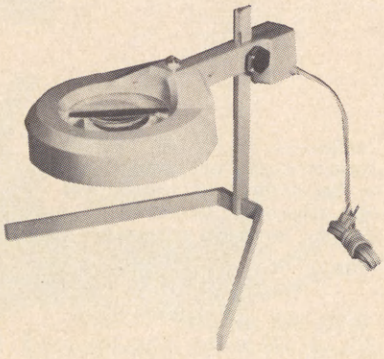
**LUXO LIL**

**A high-intensity lamp that's not a toy.** LUXO Lil glides into any position and HOLDS IT thanks to flexible spring-tension balancing.

Shade keeps cool thanks to LUXO.s scientifically vented shade design. Stands, clamps, and hangs. LUXO Lil fits in everywhere. LUXO Lil lifts off her base and slips into clamp, peg board or wall mount brackets.

BLACK ONLY

**LIL** 7" base, 24" reach . . . . . **$19.95**

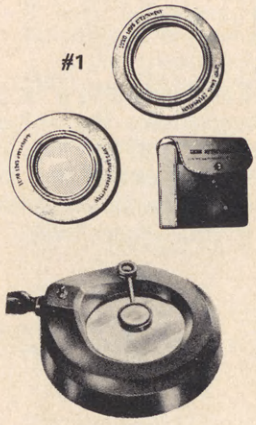


**MODEL HFM**

LUXO Hand/Stand Magnifier. Well balanced in hand, easy to manipulate. Lenses and general specifications for shade are identical to LFM series.

GREY ONLY

**HFM** . . . . . **$30.20**
**HFM-ST** With stand . . . **38.30**




**LFM AND HFM LENSES**

Factory installed in lieu of standard 3 diopter lens.

5 Diopter, add . . . . . **$ 5.00**
10 Diopter, add . . . . . **19.95**

AUXILIARY LENSES

Lens Attachment No. 1 (4 Diopter) . . . . . **.9.20**
Lens Attachment No. 2 (8 Diopter) . . . . . **10.45**
Custom Vinyl case (holds 2 attachments) . . . . . **.4.20**
10 Diopter Achro Attachment . . . . **29.95** swing-away arm

**PROTECTIVE SHIELD**

Shield protects lens and bulb from flying particles and liquid splash. Attach to any magnifier, or can be factory installed. Stainless steel gasketed retainer rim with screw fastener is easy to install. Easy to keep clean. Resistant to baking on of cutting tool lubricants.

**APSG—GLASS** . . . . . **$ 9.50**
**APSA—ACRYLIC** . . . . . **10.50**

**TUBES AND BULBS**

| | Each |
|---|---|
| 60 Watt Bulb | $ .25 |
| 15 Watt T8 Fluorescent Tubes (2 required) | 1.10 |
| 22 Watt T9 Circline Tubes | 3.50 |
| 25 Watt T8N (2 required) | .49 |
| 40S11 High Intensity | .65 |

**THREE CONDUCTOR CORD**

With molded on U-ground plug. Available for all LUXO lamp models upon request. Add **$2.50** to lamp price.

**BACK STOP**

Prevents lower arm from striking wall (for the 1 series) . . . . . **$.35**

**A**

Clamps to level surface edge of table or desk. **$2.25**

**B**

Screws to vertical surface, wall, cabinet or partition. **$2.25**

**C**

Screws to level surface, counter, work-bench or table. . . . . **$2.25**

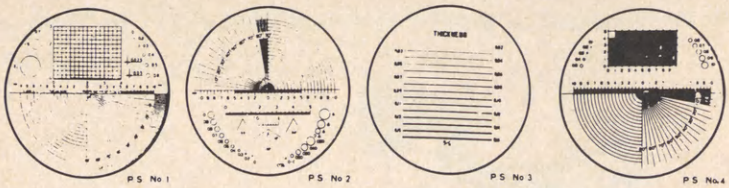
**D**

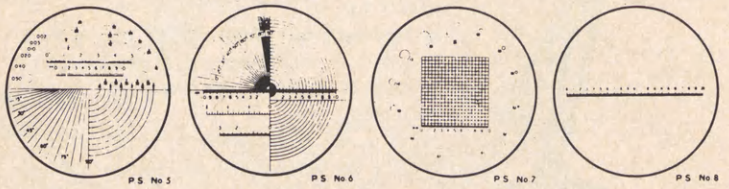
Screws to slanted surface, under top edge of drafting table. . . . . **$3.50**

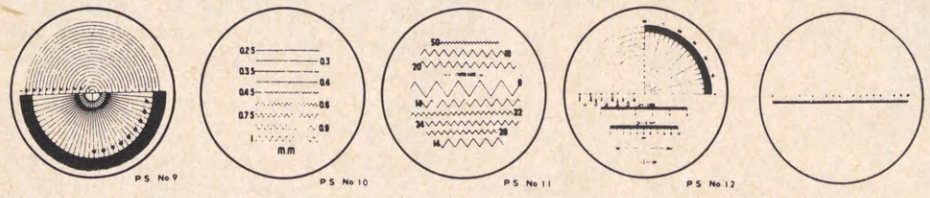
**F**

Clamps to slanted surface top edge of drafting board. . . . . **$3.50**

# INSPECTION LAMPS AND MAGNIFIER UNITS




### OPTICAL COMPARATOR

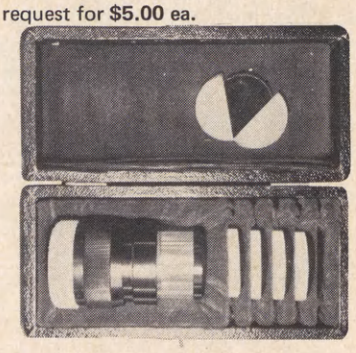
Kellner Achromatic Lens of 7 power magnification in a focusing mount for inspection use. Precision ground lens allows sharp undistorted images, completely free of aberrations. Widely used by machinists, toolmakers, and inspectors for checking angles, thread measurements, hole sizes, etc. Has many uses in the machine shop, tool toom, and at the inspection bench.

The scales are photo etched into a glass reticule which is placed in actual contact with the measured object, thus obtaining simultaneous enlarged images of the scale and measured object. Thirteen types of glass reticules are available.

**#X7-1** 7x Comparator with #5 reticule in velvet lined fitted case. . . . . **$12.50**

**#X7-5** 7x Comparator with No. 1, 5, 7, 12 and 13. (5) reticules in velvet lined fitted case. . . . . **$22.50**

Other reticules are available on request for **$5.00 ea.**



**STOCKER & YALE SYSTEMS—CLEAR-LITE**—Fully illuminated 4″ x 6″ magnified field provides superior viewing characteristics. Shadow free, cool, intense light with binocular vision and full 4″ x 6″ field illumination. Good color characteristics. Independently adjustable lens and light concentrator. Scientifically balanced illumination and magnification for best viewing of small parts—with maximum visual acuity.

### Specifications:

Lens—Optically ground and polished glass. 3½″ x 6″ x 11″ focal length.
Illumination—Up to 500 ft. candles at 3″—5″. 100 ft. candles at 12″ allowing high intensity cool light for close work.
Concentrator size—6¾″ x 2⅛″ x 1¾″.
Power rating—Standard 115V—60 cycle A.C.
Lamps—Two F4T5 cool white lamps.
Sockets—Positive contact sockets—lamps cannot jar loose or fall out.
Ballasts—Precision reactors furnishing rated power to both lamps in series.

Techni-Tool supplies the Clear-Lite complete, ready with bulbs to plug in. Available with cast base for portable applications, or with a clamp base for permanent attachment.

**38-005** (cast base) . . . . . **$72.00**

**37-005** (clamp base) . . . . . **$69.00**

Shipping weight (cast base model) 21 lbs.
Shipping weight (clamp base model) 8 lbs.
2—Lamps for above . . . . . **$3.20** ea.

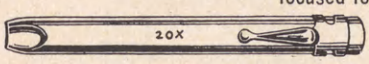
**CLEARLITE** with blacklight (long wave U.V.) bulbs for printed circuit board inspection. **Bulbs only**
**BLACKLIGHT** no visible light . . . . **.$3.20 ea.** **(BLUE) BLACKLIGHT** some visible light . . . . **.$2.40 ea.**

### SURFACE COMPARATOR

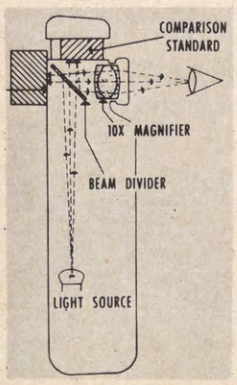
Built-in light emphasizes surface irregularities of both standard and work piece to the same degree. 10X, comparator, with PR-4 lamp, without batteries (2 pencells required) . . . . . **$30.00**

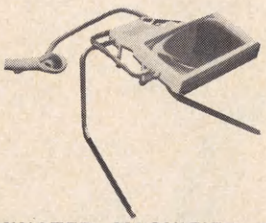
### POCKET MICROSCOPE

- **20 POWER—magnifies area 400 times**
- **Easy to use**
- **Convenient**
- **Accurate**

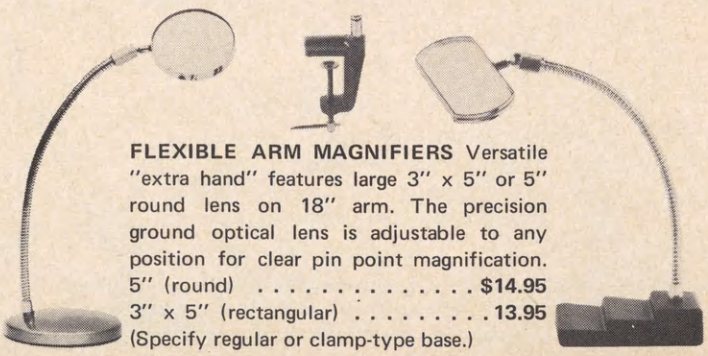



Quick, convenient and ultra-precise inspection tool where high magnification is required and laboratory facilities are not available. Features a precise four-lens system, which is prefocused for clear, undisturbed image. **$3.50**



**ILLUMINATED MAGNIFIER** Both lens and light are adjustable. Lens measure 2″ x 3 7/8″, light is 7 watt 110-115 AC. Magnification is 2½X. Maximum working distance 9″.
**81-34-80** . . . . . **.$9.95**



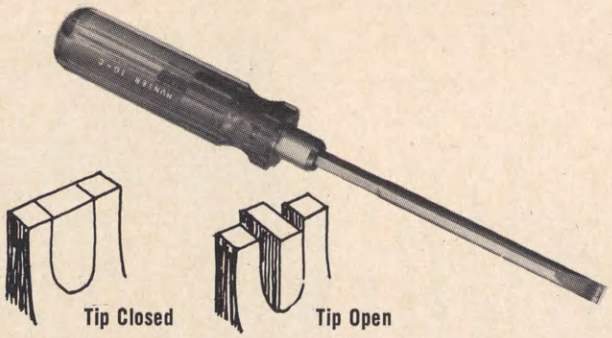
**FLEXIBLE ARM MAGNIFIERS** Versatile "extra hand" features large 3″ x 5″ or 5″ round lens on 18″ arm. The precision ground optical lens is adjustable to any position for clear pin point magnification.
5″ (round) . . . . . **$14.95**
3″ x 5″ (rectangular) . . . . . **13.95**
(Specify regular or clamp-type base.)



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# SCREWDRIVERS - HEX DRIVERS

**QUANTITY DISCOUNTS:** 1 - 9 Net 10 - 50 10% 51 - 100 20% 101 + Ask for Quotations

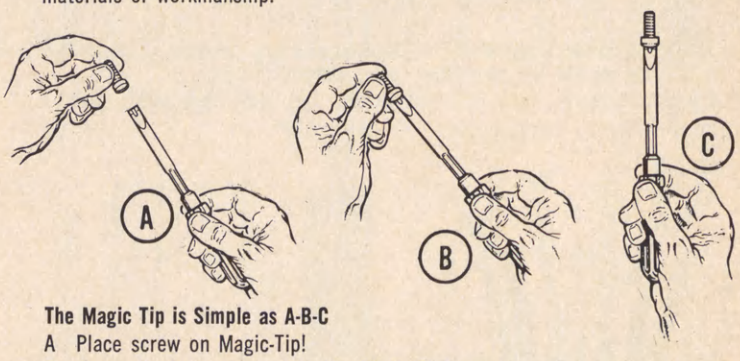



| Stock No. | Overall Length | Width of Point | Thickness of Point | Slot Fits Screw | Blade Length | Price |
|---|---|---|---|---|---|---|
| 10E3 | 2½" | 1/8" | .017 | #00 to #2 | 1¼" | $2.30 |
| 10E4 | 4" | 1/8" | .017 | #00 to #2 | 2½" | 2.70 |
| 10E7 | 7" | 1/8" | .017 | #00 to #2 | 5½" | 2.80 |
| 10M3 | 3½" | 3/16" | .030 | #3 to #6 | 1 1/16" | 2.15 |
| 10M5 | 5¼" | 3/16" | .030 | #3 to #6 | 3 1/16" | 2.65 |
| 10M8 | 8¼" | 3/16" | .030 | #3 to #6 | 5 1/8" | 2.90 |
| 10M12 | 11¼" | 3/16" | .030 | #3 to #6 | 8" | 3.20 |
| 10A | 4" | ¼" | .038 | #6 to #10 | 1 5/16" | 2.30 |
| 10B | 6¼" | ¼" | .040 | #7 to #10 | 4" | 2.80 |
| 10C | 7½" | ¼" | .040 | #7 to #10 | 4 7/16" | 2.85 |
| 10D | 11¼" | ¼" | .040 | #7 to #10 | 7 3/8" | 3.15 |

**MAGIC TIP SCREWDRIVERS**

1. Compact! Drives and removes screws in inaccessible areas where other drivers will not work!
2. Every driver checked for secure screw-holding!
3. No rings to push! No awkward, bulky clips!
4. Drives steel, non-ferrous or nylon screws!
5. Non-magnetic! Ideal for electrical work!
6. Tenite II, plastic handle . . . Shockproof! Flameproof! Tested to stand 2500 volts!
7. Blade made from A1S1-4150 alloy steel. Heat treated and hardened to 48-50 Rockwell!
8. Precision made throughout!

Magic Tip Screwdrivers are Unconditionally Guaranteed against defective materials or workmanship.

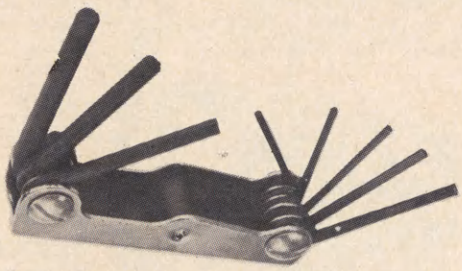



**The Magic Tip is Simple as A-B-C**

A Place screw on Magic-Tip!

B Press tip into screw slot; the Magic-Tip's center-wedge turns and automatically grips the screw head. Screw is securely locked.

C To drive screw simply press forward. To release give quick snap-back on handle and screw releases. Screwdriver is ready for reuse.



**The "SMITTY" by Hunter**—America's Leading Socket Key Set—The "Smitty" meets Federal Spec No. GGG-W-00652a, for 1960 Series Socket Head Screws. Convenient, easy to use, hard to lose! Gives the right key size when you want it. Blade made from 8650 cold drawn alloy steel, heat treated and hardened for long wear especially on the tips. Blades are strong, tough, won't bend or break under leverage applied by handle. Handle comfortable in hand. "Smittys" packed 10 to box.

| No. 1P5 MEDIUM MODEL | No. 1P6 SMALL MODEL | No. 1P7 SMALL MODEL | No. 1P8 MEDIUM MODEL |
|---|---|---|---|
| 4" Handle 2" Blades | 3" Handle 2" Blades | 3" Handle 2" Blades | 4" Handle 3" Blades |
| Size | Size | Size | Size |
| 3/32 | .050 | .050 | 3/32 |
| ⅛ | 1/16 | 1/16 | 7/64 |
| 5/32 | 5/64 | 5/64 | ⅛ |
| 3/16 | 3/32 | 3/32 | 9/64 |
| 7/32 | ⅛ | 7/64 | 5/32 |
| | 5/32 | ⅛ | 3/16 |
| | | 9/64 | 7/32 |
| | | | ¼ |
| **No. 1P5 $1.45** | **No. 1P6 $1.40** | **No. 1P7 $1.45** | **No. 1P8 $2.00** |

**SHOCKPROOF HEX DRIVERS**—Drive Socket Screws Fast With Screwdriver Action. Easiest type of socket screw drive to use. Saves time and effort on assembly line and production jobs. Tough, durable blades made from 8650 alloy steel, heat treated for toughness and correct hardness. Shockproof Tenit II plastic handles correctly sized to match blades—give tools correct balance. Assortment includes drivers for 1960 hollow head set screw series.

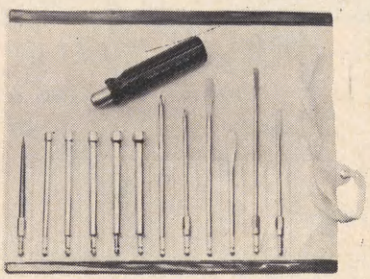
**No. K5MI**—All 14 sizes listed below in plastic roll. 2 lbs. . . . . **$13.50**

**No. K5NI**—Sub-miniature set. Sizes .028, .035, .050, 1/16, 5/64-in. In plastic roll. Packed each. . . . . **$4.10**

| No. | Size | Overall | Price |
|---|---|---|---|
| 5D | 1/8 | 6¾" | $ .82 |
| *5D1 | 9/64 | 7" | .82 |
| 5E | 5/32 | 7 5/8" | .82 |
| 5F | 3/16 | 8" | .90 |
| 5G | 7/32 | 8 3/8" | 1.00 |
| 5H | 1/4 | 9" | 1.22 |
| 5I | 5/16 | 10" | 1.45 |

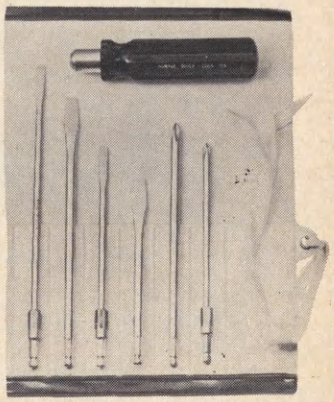
| Stock | Size | Overall | Price |
|---|---|---|---|
| 4Y | .028 | 4" | $.80 |
| 4Z | .035 | 4" | .80 |
| 5 | .050 | 4 5/8" | .70 |
| 5A | 1/16 | 5 1/8" | .72 |
| 5B | 5/64 | 6" | .76 |
| 5C | 3/32 | 6 3/8" | .80 |
| *5C1 | 7/64 | 6 3/4" | .80 |

**Minimum of 10 in each size.**



**ALL PURPOSE KITS**—13 piece kit for all uses. Includes: locking handle; nut drivers, 3/16 x 4, ¼ x 4, 5/16 x 4, 11/32 x 4, ⅜ x 4; screwdrivers, 3/16 x 4, 3/16 x 6, ¼ x 4, ¼ x 6, #1 and #2 Phillips and a 4" Awl.

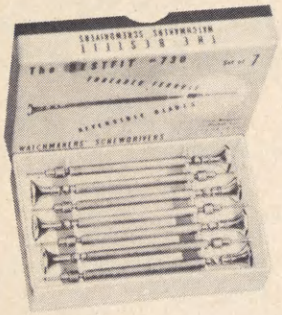
**No. K12C-Kit** . . . . . **$ 9.00**

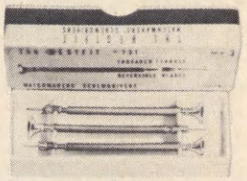


**7 PC. DRIVER KIT**—7 Piece screwdriver kit; all the most wanted driver sizes. Big plastic handle with spring loaded chuck, holds blades securely; six screwdriver blades, 3/16 x 4, 3/16 x 6, ¼ x 4, ¼ x 6, No. 1 and No. 2 Phillips 4-in. long. All in plastic roll.

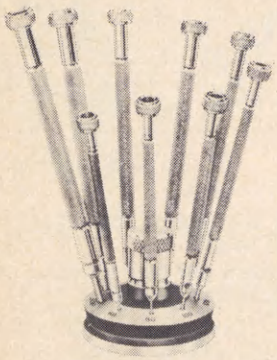
**No. K11GA**—7 pc. kit . . . . **$6.30**

# MICRO SCREWDRIVERS-SCREW STARTERS

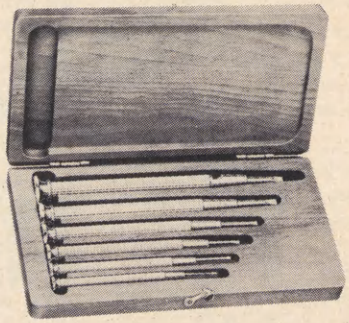




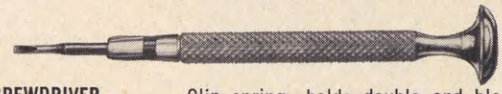
**BESTFIT SETS OF 7 and 3**— Screwdrivers are completely nickelled—Blades are double end reversible—Color identifying heads.
**SD-730**—Set of 7:—Blade sizes: .024, .033, .039, .047, .050, .058" . . **$3.50**
**SD-731**—Set of 3:—Blade sizes: .024, .027, .033" . . . . . **1.75**



**SET OF 9 ON STAND**— Screwdriver is nickelled—Set screw holds blades.—Center compartment of metal stand holds 2 extra blades for each size.
**SD-750**—Set of 9:—Blade sizes: .024, .032, .039, .047, .055, .063, .079, .088, .118" **$8.75**



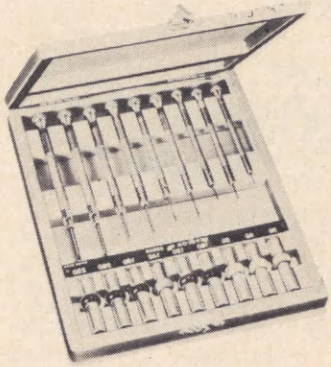
**BOLEY SET OF 6**— Aluminum lightweight handles and head—nickelled blades. Comes in finished hardwood box.
**SD-780**—Set of 6:—Blade sizes: .039, .055, .071, .091, .114, .142" . . **$8.25**



**DOUBLE END SCREWDRIVER**— Clip springs holds double end blades sizes. .085, .060"—Overall length 4½".
**SD-775M** . . . . . **$1.25**

**BERGEON SCREWDRIVERS**— 3 extra blades are kept in handle. Set screw holds blades. Blades measure .059, .079, .088 and .118".—Overall length 6". **1037** . . . . . **$6.60**

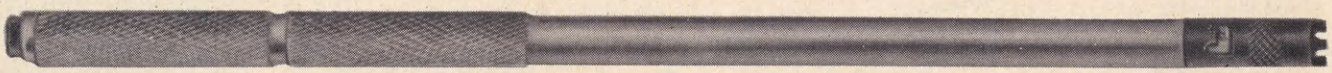
**NON-MAGNETIC SCREWDRIVERS**
The new BERGEON Non-Magnetic Screwdriver blade is made from a completely non-magnetic chrome alloy. The set contains five of the most popular sizes: .50, .60, .80, 1.00, 1.20m/m with a replacement blade for each size. Complete in a sturdy box. **4840** . . . . . **$7.95**



**BERGEON DELUXE SET**
Chromed steel with color identifying bands. Each screwdriver has its companion tube for spare blades. Complete in finished hardwood box.
**30009** . . . . . **$17.50**

**MECHANICAL SCREW STARTERS**—for standard slotted ferrous or non-ferrous screws. No more fumbling with hard-to-position screws, a simple twist of the alloy steel bit and screw is firmly held, ready for trouble-free starting. Tool releases and resets automatically. Slender Duraluminum or shock-resistant Nylon handles.

**DURALUMINUM**



D-1—2 5/8" O.A.L.
**$1.75 ea. 10 + $1.60 ea.**

D-2—5 5/8" O.A.L.
**$1.90 ea. 10 + $1.75 ea.**

D-3—9 5/8" O.A.L.
**$2.20 ea. 10 + $2.00 ea.**

D-4—15 1/8" O.A.L.
**$3.00 ea. 10 + $2.80 ea.**

PD-9—2¾" O.A.L.
**$2.25 ea. 10 + $2.00 ea.**

PD-10—5¾" O.A.L.
**$2.50 ea. 10 + $2.25 ea.**

PD-11—9¾" O.A.L.
**$2.70 ea. 10 + $2.30 ea.**

PD-12—15¼" O.A.L.
**$3.50 ea. 10 + $3.25 ea.**

**ELECTRIC SHOCK RESISTANT**

N-1—2 11/16" O.A.L.
**$2.25 ea. 10 + $2.00 ea.**

N-2—6 1/8" O.A.L.
**$2.35 ea. 10 + $2.20 ea.**

N-3—9 1/8" O.A.L.
**$2.50 ea. 10 + $2.25 ea.**

N-4—15 3/16" O.A.L.
**$3.50 ea. 10 + $3.25 ea.**

PN-9—2 13/16" O.A.L.
**$2.25 ea. 10 + $2.00 ea.**

PN-10—6¼" O.A.L.
**$2.50 ea. 10 + $2.25 ea.**

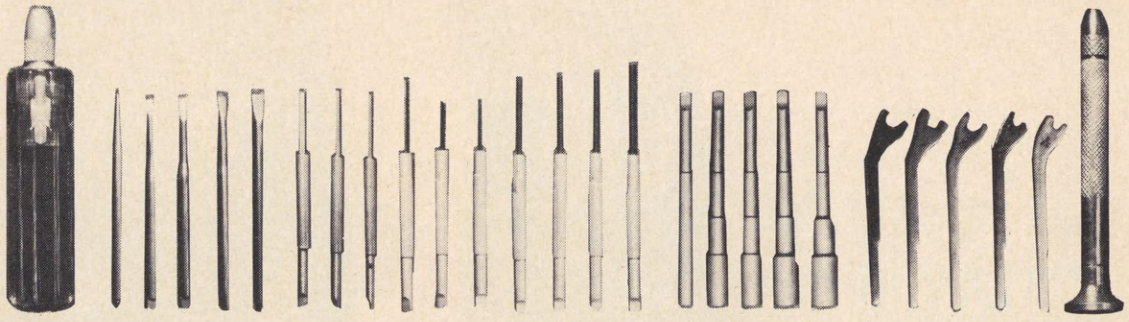
PN-11—9¼" O.A.L.
**$2.70 ea. 10 + $2.25 ea.**

PN-12—
**$3.50 ea. 10 + $3.25 ea.**



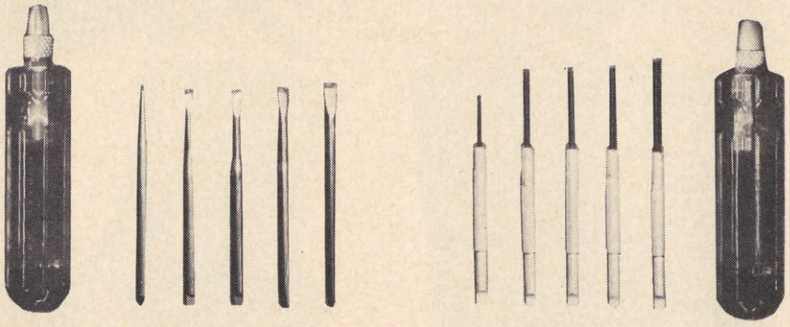
ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# MICRO SCREWDRIVER SETS



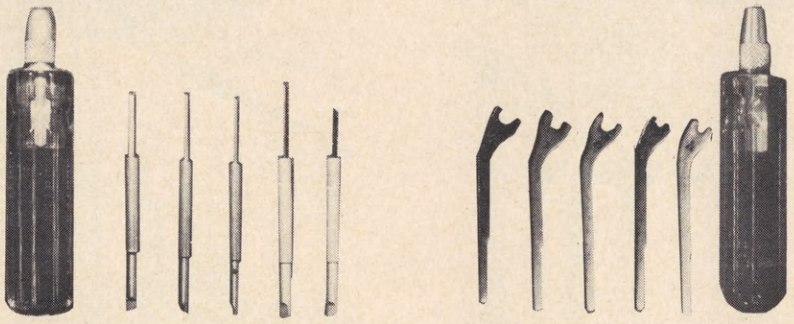
**24M—29 pc. Master Set.** Includes plastic hdl. **No. 24T1** jewelers hdl. **$15.00**

5 miniature wrenches, 4 regular and 2 Phillips screwdriver blades, awl, 5 spline blades, 5 nut drivers, 5 hex keys —individual sizes as listed on this page.



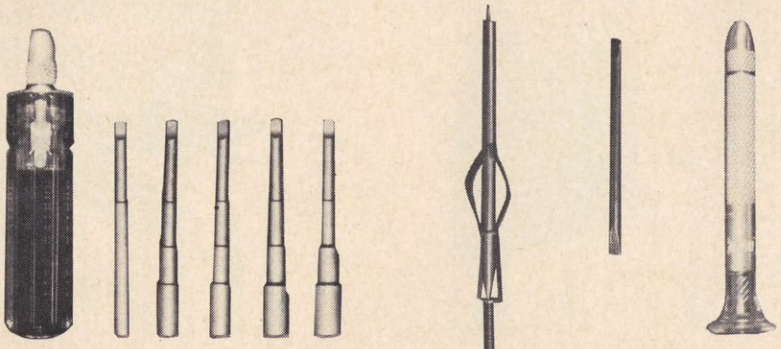
**24B11 6 PC. SCREWDRIVER SET** 4 blades .055, .070, .080, plus awl. #24T1 hdl.. . . **$2.70**

**24Q1—6 pc. Spline Kit.** With plastic handle No. 24T1 above and five spline sizes listed below. **$3.00**



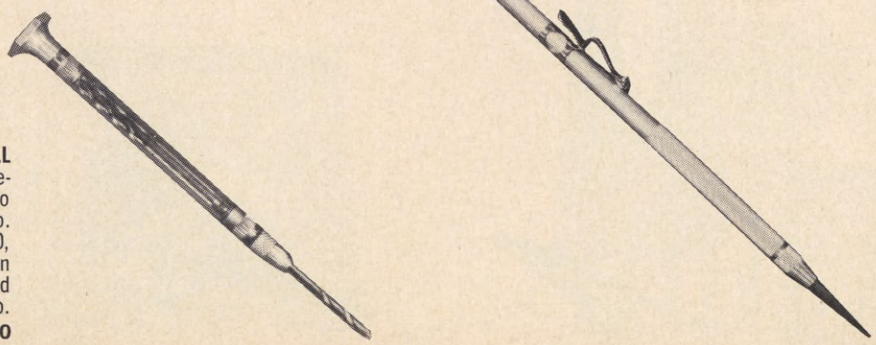
**24S1—6 pc. Hex Kit.** With plastic handle No. 24T1 and five hex key sizes listed below. **$3.10**

**24U — Offset wrenches with plain handle.** Collet chuck holds firmly. Wrench sizes: 5/64″, 3/32″, 7/64″, 1/8″, 5/32″. **$3.95**



**24V—6 pc. Nut Driver Kit.** With plastic handle No. 24T1 and five driver sizes listed below. **$4.40**

**SH-2 — SCREW HOLDING SCREW DRIVER SET**—A tiny screw holding screw driver set that contains a swiveltop handle whose solid locking chuck takes either 2½″ or the 1¾″ length blades. Each blade is especially adapted to take the spring steel clip that holds tiny screws better than fingers. This clip slides down the blade, grips the screw and holds it firm while it is being inserted into or removed from those hard to get at places. All four parts are cleverly contained in a plastic case. **$1.60**



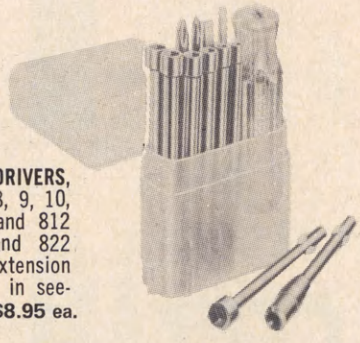
**60 & No. 70 — TINY TAP DRILL SETS**—These two sets were designed as companion pieces to the TS-5 Tiny Tap Set. Set No. 60: drill sizes Nos. 43, 47, 50, 53, 3/64″. Drills are stored in hollow clear plastic handle. Solid locking chuck nose. Swivel top.
**60 $2.40 70 $2.90**

**42 — POCKET MAGNET AND SCRIBER WITH CLIP**—This combination Pocket Scriber and Pocket Magnet offers a compact package of great utility. The knurled barrel permits maximum pressure without fingers slipping. A chuck-type nose enables the scriber point to be reversed for safety when not in use. **$1.00**

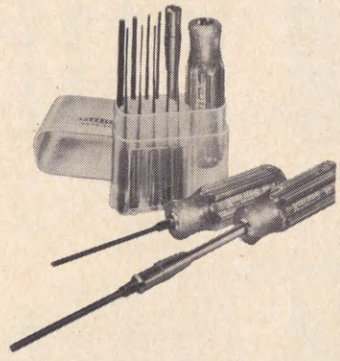
# XCELITE SCREWDRIVER - NUTDRIVER KITS

**PS-7 SET**— 2 color coded nutdrivers PS8 (¼") and PS10 (5/16"); 2 slot tip screwdrivers P3321 (3/32") and P3161 (3/16"); 2 Phillips screwdrivers P0 (#0) and P1 (#1); all 3½" pocket size . . . plus 1" X 3⅛" hollow handle (TA2) and case (PS7C). . . . . **$4.15 ea.**

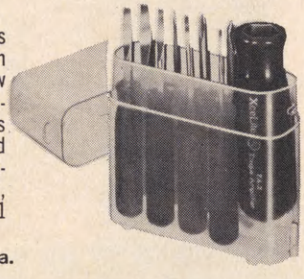
**PS44 SCRULOX SCREWDRIVER SET**—Scrulox screwdriver tip sizes: 00, 0, 1, 2, 3. Nutdriver P8, Hex opening ¼". Torque amplifier handle. . . . . **$4.15 ea.**



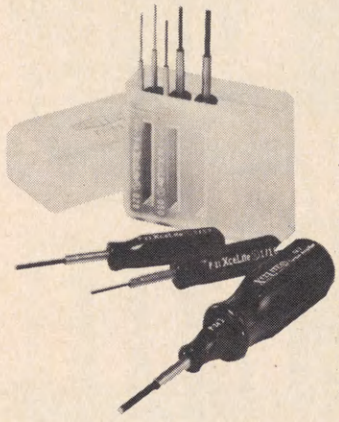
**PS-50 COMPACT SET SCREWDRIVERS, NUTDRIVERS**—Contains 99-6, 7, 8, 9, 10, 11 and 12 Nutdrivers; 99-811 and 812 Slotted Screwdrivers; 99-821 and 822 Phillips Screwdrivers; 99-X5 Extension Blade; and 99-1 Regular Handle, in see-thru Plastic Case (99PS-50C). **$8.95 ea.**



**PS-60 COMPACT SET BRISTOL MULTIPLE-SPLINE SOCKET SCREWDRIVERS** — Contains 99-61, 62, 63, 64, 65, 66, 67, 68 and 69 Bristol Multiple-Spline Socket Screwdriver Blades; 99-X5 Extension Blade; and 99-1 Regular Handle, in see-thru Plastic Case (99PS-60C) similar to 99PS-40 set. . . . . **$7.15 ea.**

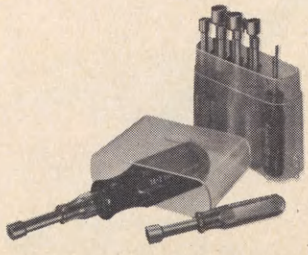


**PS-88 SET OF SCREWDRIVERS** — This screwdriver set has wide flexibility in blade type and sizes and features new "piggyback" torque amplifier hollow handle, which is slipped over midget handles to provide larger gripping surface, extend reach and increase driving power. Set includes blade sizes: 3/32" x 1", ⅛" x 1", 5/32" x 1", 3/16" x 1",¼" x 1". Nos. 0, 1 and 2 Phillips all 3½" long.
Compact case included. . . . **$4.15 ea.**



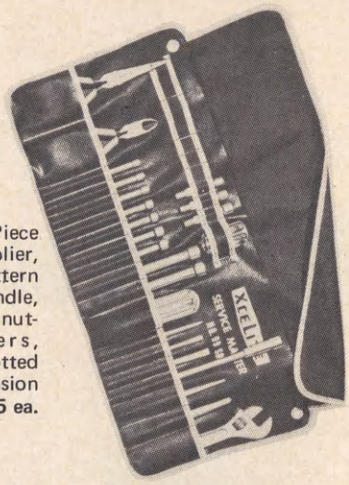
**PS-89 HEXDRIVER SOCKET SET** – This versatile set contains 8 midget Allen hex type screwdrivers in sizes from .028" to 1/8". Clearly marked with Catalog Number and hex size. "Piggyback" torque amplifier handle provides a larger gripping surface, extended reach, and increased driving power. Tools are enclosed in a sturdy, see-through plastic case. **$4.35 ea.**

**No. PS-99-40 ALLEN TYPE SCREWDRIVER SET**—Interchangeable blade set includes 9 blades, 4" extension shaft and amber plastic shockproof handle. Positive locking device. Blades fit hex sizes: .050", 1/16", 5/64", 3/32", 7/64", ⅛", 9/64", 5/32", 3/16". Compact case included.
**$7.15**

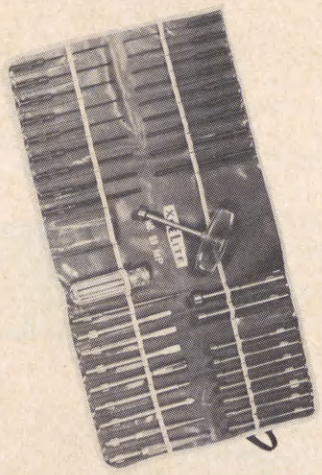


**PS-120 SET OF NUTDRIVERS** — The PS-120 set is similar to the PS-88 in that it features the unique new torque amplifier handle which increases the gripping surface, reach and driving power of the midget tool to that of standard drivers. Hex openings: 3/32", ⅛", 5/32", 3/16", 9/32", ¼", 5/16", 11/32", ⅜". Compact case included.
**$5.85**

# XCELITE - MOODY SCREWDRIVER KITS

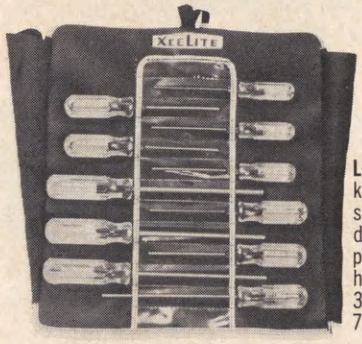


**99SM SERVICE MASTER**—23-Piece Kit. Including: 6" Long nose plier, 5" Diagonal plier, 6" Thin-pattern adjustable wrench, Regular handle, Stubby handle, Nine regular nutdrivers, Three stubby nutdrivers, Phillips screwdrivers, Two slotted screwdrivers, Two reamers, Extension blade and Canvas case. . . **$26.85 ea.**

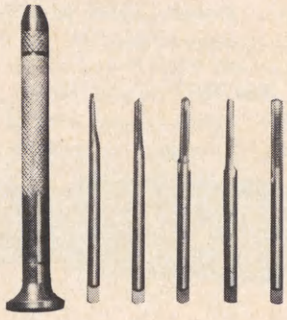


**99MP MULTI-PURPOSE TOOL KIT** 39-Piece Kit. Including: Regular handle, Tee handle, Ten regular nutdrivers, Four slotted screwdrivers, Two phillips screwdrivers, Two reamers, A scriber, Extension blade and Canvas case. . . . . **$28.35 ea.**

**No. HS6-18 CARRYING CASE**—Case similar to No. 77. Contains hollow shaft Nos. HS6, HS7, HS8, HS9, HS10, HS11, HS12 HS14, HS16 and HS18. . . . **$11.63 ea.**




**LN-11 ALLEN TYPE ROLL KIT**—This new kit of durable plastic contains 11 precision formed, alloy steel Allen type screwdrivers—permanently imbedded in shock proof, breakproof, amber plastic (UL) handles. Hex sizes: .050", 1/16", 5/64", 3/32", 7/64", ⅛", 9/64", 5/32", 3/16", 7/32", ¼". . . . . **$9.54 ea.**

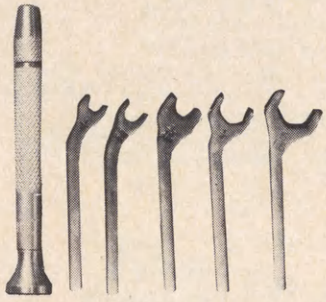


**TS-5—TINY TAP SET** — Newly designed tool set features tough, heat-treated steel taps for cutting tiny inside threads in wide variety of uses. Tap sizes: 0-80, 1-72, 2-56, 3-48, 4-40. Handy knurled steel chuck type handle has torque hole for steady firm leverage.

**1 - 5 $6.25 ea. 6 + $5.50 ea.**

**SW-5**

**1 - 5 $3.15 ea. 6 + $2.75 ea.**

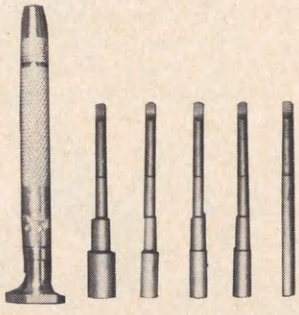


**SET OE-5 or OE-5A—OFFSET OPEN END WRENCHES**—Includes 5 tiny offset open end wrenches and chuck type knurled steel swivel top handle. 8 wrench sizes are available in two set-combination as follows: **OE-5**—5/64", 3/32", 7/64", ⅛", 5/32"; **OE-5A**—⅛", 5/32", 3/16", ¼", 5/16";

**1 - 5 $2.25 ea. 6 + $1.95 ea.**

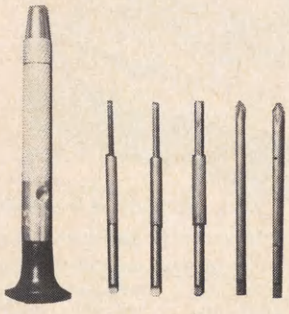
**OE-5A**

**1 - 5 $2.25 ea. 6 + $1.95 ea.**



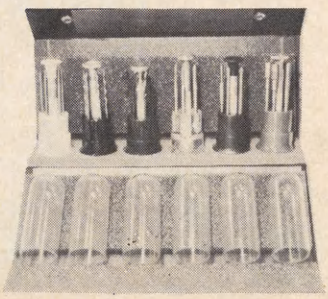
**BW-5 or SW-5—TINY SOCKET WRENCH SET**—Comprised of 5 interchangeable tiny socket wrenches in handy magnetic chuck type, swivel top handle and clear topped storage case. Set contains socket wrench. Hex sizes 5/64", 3/32", 7/64", ⅛" and 5/32". Tiny nuts can be easily removed from or inserted into accessible places and recessed holes.

**1 - 5 $3.55 ea. 6 + $3.00 ea.**



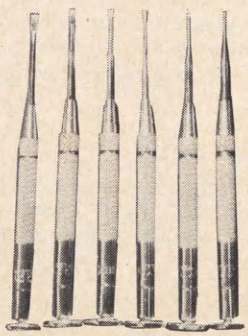
**PA-5—PHILLIPS, ALLEN TYPE WRENCHES**—Kit consists of 5 precision wrenches and chuck type, swivel top handle with torque hold. Nos. 0 and 1 Phillip's drivers and Nos. 4, 6 and 8 Allen type wrenches are interchangeable in swivel top handle. Tools are displayed for easy access in transparent blister-type stand.

**1 - 5 $2.25 ea. 6 + $2.00 ea.**



**MMK-6—MASTER KIT** — Consists of six individual miniature tool sets—in separate plastic containers. Compact (8⅛" x 3½" x 1½") this new Master Kit contains a selection of the most popular tiny tools. Incorporates tiny screwdrivers, awls, Phillips and Allen type wrenches, tiny taps, off-set open end wrenches, etc.

**1-5 $18.95 ea. 6 + $16.00 ea.**



**JS-6 — JEWELERS' SCREWDRIVER SET**—Manufactured in accordance with Federal Specifications GGG-S-121D and Amendment #2 of March 14, 1956. FSN 5120 288-8739. Set of 6 sizes: .026 .040, .055, .070, .080, .100". Made with Size Identifying rings. All metal with Hexagon Heads, screw chuck.

**1-5 $3.75 ea. 6 + $3.40 ea.**

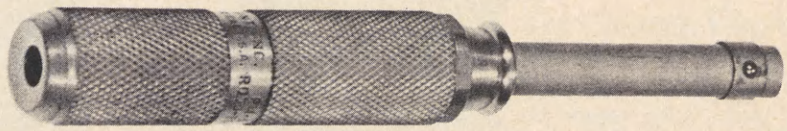
# CLECO TORQUE SCREWDRIVERS

**MODEL PM-5 ADJUSTABLE TORQUE-LIMITING SCREWDRIVER** A tamper-proof screwdriver ideal for production. Preset on analyzer to exacting torque requirements, rechecked at scheduled intervals by quality control. Preset and sealed at factory, when requested. No dial to watch and clutch releases automatically when torque is reached. Frictionless, patented mechanism assures torque accuracy and long service life. Long shaft for hard-to-reach fasteners. Torques in both right and left-handed directions. Accurate to ± 3%, and meets accuracy requirements of MIL-H-26497. . . . . **$19.75**

**RANGE**
**4 - 100 in. oz.**
**.29 - 7.2 cm.kg.**

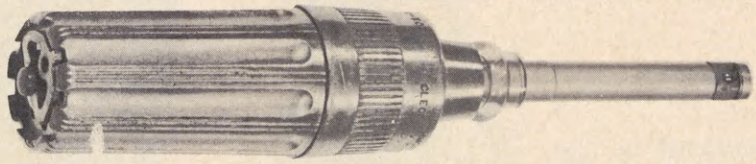
**PM-5 SCREWDRIVER**

| | | |
|---|---|---|
| Length (less bit) | 5½ in. | 139.7 mm |
| Grip Diameter | 25/32 in. | 19.8 mm |
| Weight | 3.5 oz. | .1 kg. |
| Hex Drive | 1/4 in. | ——— |



**MODELS CAL-30, CAL-35, AND METRIC M-CAL-30 CALIBRATED, ADJUSTABLE TORQUE-LIMITING SCREWDRIVERS** Eliminates human error and operator cannot over-torque or influence torque accuracy. Calibrations are clearly marked and magnified for quick, easy reading. Frictionless, patented mechanism assures torque accuracy and long service life. Easy to operate, simply dial torque, insert bit, and tool is ready for job. Long shaft for hard-to-reach fasteners. Disappearing thumb screw permits quick change of torque. Can be preset and sealed for production use. Torque in both right and left-hand directions, accurate to ± 3% plus ½ graduation. Comfortably balanced handle. Meets requirements of MIL-H-26497. **$32.50**

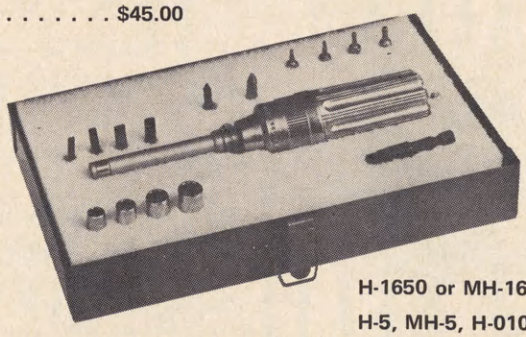
| | CAL-30 | CAL-35 | M-CAL-30 |
|---|---|---|---|
| Range | 2-30 in.-lb. | 2-35 in.-lb. | 3-34 cm. kg. |
| Graduation | 2 in.-lb. | 2 in.-lb. | 2 cm. kg. |
| Length (less bit) | 7½ in. | 7½ in. | 190.5 mm |
| Grip Diameter | 1 3/8 in. | 1 3/8 in. | 35 mm |
| Weight | 8 oz. | 8 oz. | .23 kg. |
| Hex Drive | 1/4 in. | 1/4 in. | 1/4 in. |



**MODEL TSK-30A TORQUE SCREWDRIVER KIT** Consists of CAL-30 screwdriver, sturdy metal case with foam insert, and all accessories listed below:

| Allen Bits | | Phillip Bits | | Slotted Bits | | 12-Point Sockets | |
|---|---|---|---|---|---|---|---|
| Part | Hex | Part | Point | Part | Screw | Part | Nominal |
| 249 | 1/16 in. | 1811 | No. 1 | 1510 | 3F-4R | 4708-T | 1/4 in. |
| 250 | 5/64 in. | 2512 | No. 2 | 1810 | 4F-5R | 4710-T | 5/16 in. |
| 251 | 3/16 in. | ——— | ——— | 2510-1 | 5F-6R | 4711-T | 11/16 in. |
| 252 | 1⁄8 in. | ——— | ——— | 2510 | 6F-7R | 4712-T | 3/8 in. |

**TSK-30A . . . . . $45.00**

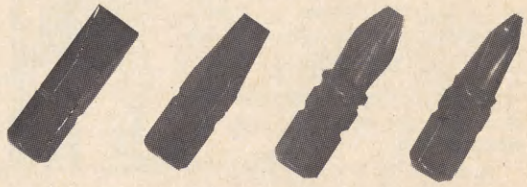


**HAND SCREWDRIVERS/PERMANENTLY MAGNETIC**

**No. 54** 5" Overall Length. With four bits, 2 for slotted screws and 2 for Phillips recessed screws. One bit in bit holder and three bits in handle compartment. Black Plastic Handle (Underwriter Lab. Approved). Round forged steel shank chrome plated.
**No. 84** 8" Overall Length. Same as above.
**No. 114** 11" Overall Length. Same as above.

**#54, #84 or #114. . . $3.90 Each**

4 bits includes with each model.
Permanent magnet in screw driver shank not only holds the 1/4" hex screw driving bit-tip, but also passes its magnetism to securely hold any type of screw. **Specify . . . . . .$.50 ea.**



**H-1650 or MH-1650 . . . . . $210.00**
**H-5, MH-5, H-010 or MH-010 . . . $149.00**

**HAND TOOL TORQUE ANALYZERS AND ANALYZER TEST KITS**

| Model | H-1650 | M-H.1650 (Metric) | H-5 | M-H-5 (Metric) | H-010 | M-H-010 (Metric) |
|---|---|---|---|---|---|---|
| Capacity | *0-1800 in.-lbs. 0-150 ft.-lbs. | *0-1800 in.-lbs. 0-20.5 m. kg. | ½-40 in.-lbs. | 1-46 cm. kg. | 2-110 in.-oz. | 100-8000 cm. gr. |
| Graduations | 2 in.-lbs. 1 ft.-lb. | 2 in.-lbs. .1 m. kg. | ½ in.-lbs. | 1 cm. kg. | 1 in.-oz. | 100 cm. gr. |
| Drive Size, Male Hex | 9/16 in. | 9/16 in. | 1/4 in. | 1/4 in. | 1/4 in. | 1/4 in. |
| Accuracy** | 1% or one dial graduation whichever is greater | 1% or one dial graduation whichever is greater | ± 1% + ½ in.-lbs. | ± 1% + 1 cm. kg. | ± 1% + ½ in.-oz. | ± 1% + 50 cm. gr. |

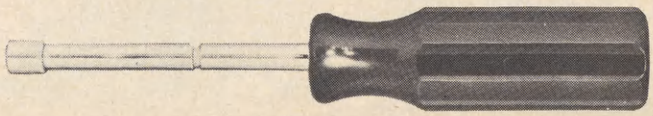
*Dual Scale
**Accuracy certified traceable to the National Bureau of Standards

**SHORT LENGTH DRIVERS**

| CATALOG NO. | NOMINAL HEX SIZE | O.A.L. | PRICES |
|---|---|---|---|
| MS-8 | 1/4" | 5¾" | $3.05 |
| MS-10 | 5/16" | 5¾" | 3.20 |
| MS-11 | 11/32" | 5¾" | 3.25 |
| MS-12 | 3/8" | 6½" | 3.25 |
| MS-14 | 7/16" | 6½" | 3.45 |

**1650 TORQUE CONTROL SYSTEM** Supplies on-the-spot means for constant checking or recalibration of all torque tools with capacities of 0-1800 in.-lbs. and 0-150 ft.-lbs.

| Test Kit Model No. | DWTS-010 | DWTS-5 | DWTS-1500 |
|---|---|---|---|
| | H-101 MH-101 | H-5 MH-5 | H-1650 MH-1650 |
| | $82.50 | $94.50 | $375.00 |

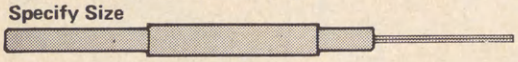




ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# TORQUE SCREWDRIVERS AND ACCESSORIES

### MINIATURE BITS
### ALLEN BITS – #8190
For set screw size 0-6 and 8. **$.85 ea.**
**Specify Size**



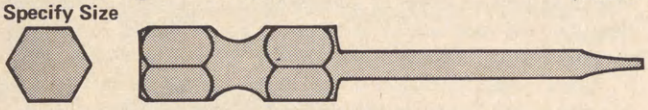
### SLOTTED–TYPE BITS – .010 to .015
Blade Thickness #8194 **$.90 ea.**
**Specify Size**

### PHILLIPS BITS –
Point size 0 and 1. **$.90 ea.**
**Specify Size**

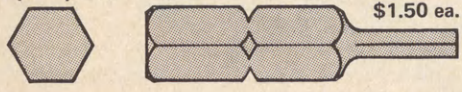
### BIT AND NUT DRIVER SETS

| DESCRIPTION | SET NO. | CODE NO. | PRICE |
|---|---|---|---|
| 5 Miniature Allen Bits | SS-Set | 819182 | $3.80 |
| 7 Miniature Bristol Bits | SSB-Set | 819183 | 9.90 |
| 2 Miniature Phillips Bits | PH-Set | 819184 | 1.70 |
| 4 Miniature Slotted Bits | SL-Set | 819185 | 3.35 |
| 5 Short Series Nut Drivers | NDS-Set | 819186 | 5.95 |
| 7 Long Series Nut Drivers | NDL-Set | 819187 | 10.50 |

### SLOTTED-TYPE BITS – #8496
Screw size IF-2R to 12F-14R.
(Overall Length – 1 15/16") **$.75 ea.**
**Specify Size**



### ALLEN BITS – #8912
Cap screw sizes 0 to 10 and ¼", 7/16", 3/8", X ½".
**Specify Size** **$1.50 ea.**

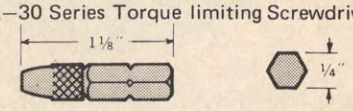


Other Analyzers Available

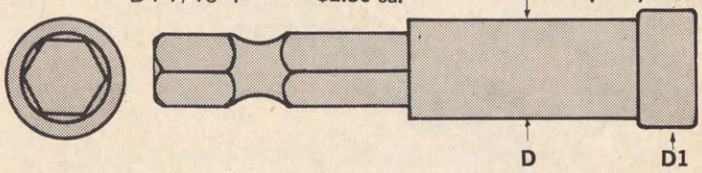
### NUT DRIVERS – #8197
**$1.60 ea.** Hex opening 5/64" to ¼".
**Specify Size**

### BRISTOL MULTIPLE-SPLINE BITS –
**$1.60 ea.** Bristol key and sizes 0 – 8. **Specify Size**

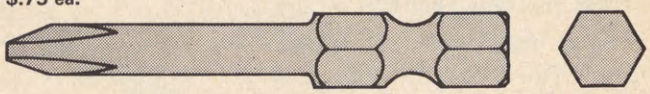
### #2789 ADAPTER
Required for all bits and drivers listed. 2789 Adapter for use with PM–5 or CAL–30 Series Torque limiting Screwdrivers.
**$1.35 ea.**



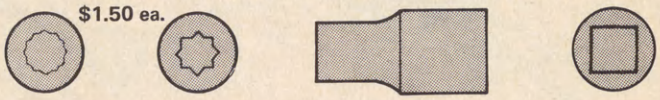

### BIT HOLDERS FOR HEX INSERT BITS – #8113
¼" Male Hex Drive, Length 2 7/16", Diameter 3/8", D1 7/16". **$2.50 ea.** **Specify Size**




### PHILLIPS BITS – #8193
Specify machine or sheet metal screws - #1, 2, 3.
(Overall Length 1 5/16") **Specify Size**
**$.75 ea.**



### 12-POINT (HEX) OR 8-POINT (SQUARE) SOCKETS #710
For bolt sizes 2 to 12 and ¼", 5/16", 3/8". **Specify Size**
**$1.50 ea.**



### TORQUEMASTER TORQUE LIMITING SCREWDRIVERS
Miniature torque limiting screw driver operates bi-directionally in a range of ½ to 10 inch ounces. Its light weight and compact size assures accurate fingertip control for the most delicate assembly operations.

Accuracy is ± 3 per cent, and it can be verified or set to another value by utilizing the companion torque wrench analyzer, which has a tolerance of ± 1 per cent, and a range of 0 to 10 inch ounces. It can be used for either right or left-hand settings.

Collet chuck accomodates Allen, Phillips, slotted screw, and nut socket adapters for No. 0 to No. 4 socket screws, machine screws, and nuts.

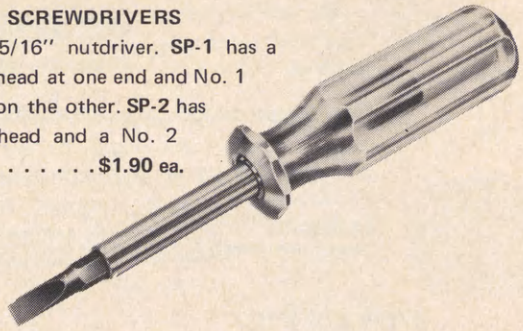
| MODEL | TORQUE RANGE | DRIVE | PRICE |
|---|---|---|---|
| MINI-MASTER - 1 | ½ to 10 IN/OZS | PIN VISE | $21.75 |
| MINOR - 2 | 3 to 36 IN/OZS | ¼" SQUARE | 18.95 |
| STANDARD - 3 | ½ to 36 IN/OZS | ¼" SQUARE | 19.95 |
| MAJOR - 4 | 10 to 100 IN/LBS | ¼" SQUARE | 21.50 |
| ANALYZER | 0 to 10 OZ/IN | _____ | 98.00 |

# SCREWDRIVERS - MULTI-PURPOSE

**QUANTITY DISCOUNTS:** 1 - 11 10% 12 - 36 15% 37 - 72 20% 73 + Ask for Quotations

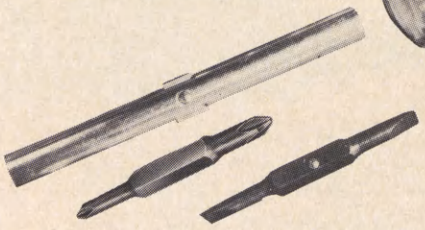
### REVERSIBLE SCREWDRIVERS

Doubles as a 5/16" nutdriver. **SP-1** has a 3/16" slotted head at one end and No. 1 recessed head on the other. **SP-2** has a ¼" slotted head and a No. 2 recessed head. . . . . **$1.90 ea.**



### 4–in–1 REVERSIBLE SCREWDRIVERS

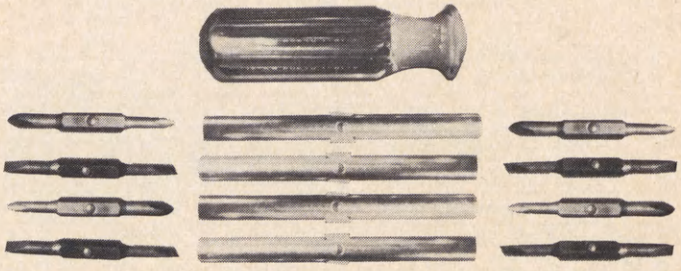
Double end hex bits are held in each end of the hex tube. Bits are reversible in tube and tube is reversible in handle. This unique design permits quick bit change by merely reversing bits or tube.



| | | |
|---|---|---|
| **FB–41** | Slotted blades | **$3.20** |
| **RC–41** | Recessed head blade | **3.20** |
| **CH–41** | Clutch head blades | **3.20** |
| **MX–41** | Recessed head & slotted blades | **3.20** |

### 4-IN-1 ADJUSTABLE NUTDRIVER

Adjusts automatically to fit any hex nut size from ¼" to 7/16". Simply press and turn. Offers the advantages of a four piece socket wrench set in one compact unit. . . . . **$3.95**

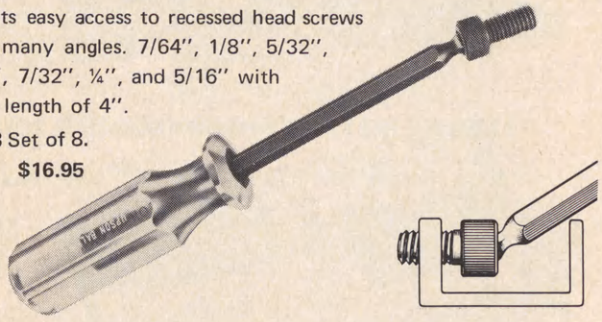


Complete kits of one handle and 4 sleeves with bits. A total of 16 different screwdrivers in a vinyl pouch. **X-16** . . . . . **$14.50**

### BALL END DRIVERS FOR ALLEN TYPE RECESSED SCREWS

Permits easy access to recessed head screws from many angles. 7/64", 1/8", 5/32", 3/16", 7/32", ¼", and 5/16" with blade length of 4".

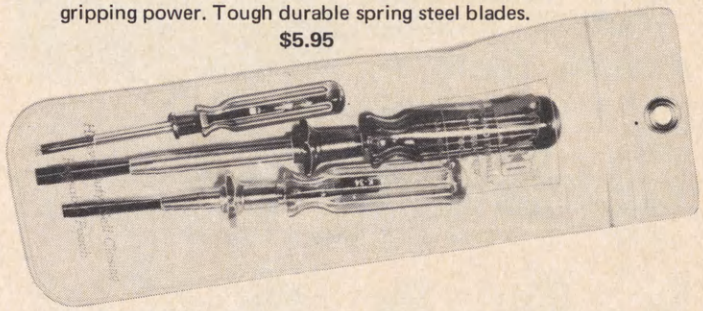
**#BE-8** Set of 8.
**$16.95**



**No. SK-234 Screw Launcher Kit**

The perfect matched set for the serviceman, repairman or mechanic. Beautiful red and white self-closing pouch holds three screw launchers. Color coded for size. (1/8" x 3", 3/16" x 4", and 1/4" x 6" blade sizes). Exclusive comfordome handle for fast, positive gripping power. Tough durable spring steel blades.

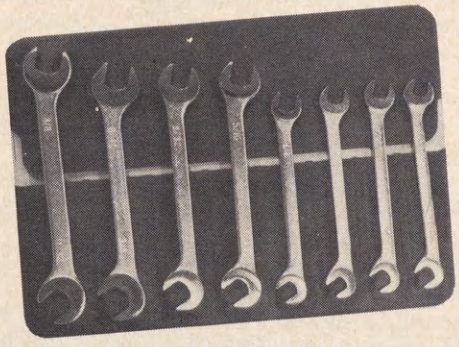
**$5.95**

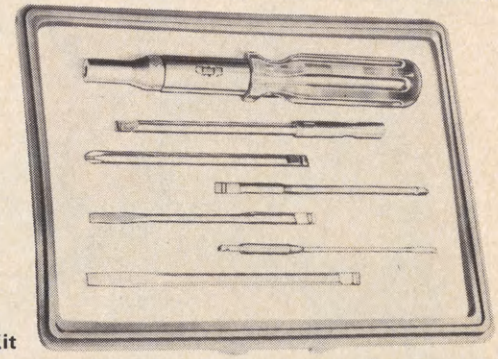


**No. 516100 Ratchet Handle Snap Driver Kit** — shown

Contains: No. 111004 Ratchet Handle, 1/8" x 4" blade, 3/16" x 4" blade, 1/4" x 5" blade, No. 1 Phillips Blade and No. 2 Phillips Blade.

**$7.75**





**No. 146-K MINIATURE WRENCHES**

Forged from alloy steel. Chrome finished. Heads coined, broached, and polished. Meets government specifications. 15°-60°F each size. 13/64 to 3/8.. . . . . **$7.25**

**No. 516102 Kit**

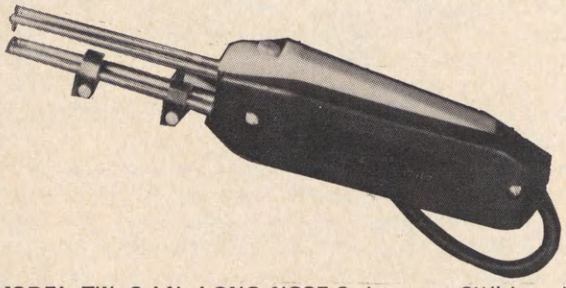
Features a most versatile and complete selection of hollow shaft hex nut driver blades for radio, TV or any other work requiring speedy nut setting. Hex sizes from 1/4" to 7/16". **$9.25**

# STRIPALL THERMAL WIRE STRIPPERS

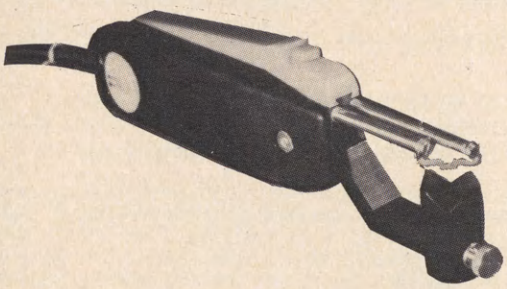
**QUANTITY DISCOUNTS:** **1 - 3 Net** **4 - 12 10%** **13 + Ask for Quotations**

Strips all insulations including: Teflon, Kel–F, Nylon, Glass Braid, Rubber, Neoprene, Vinyl, Cotton and plastics. The rugged alloy blades have a long life under demanding production schedules. They heat to temperature–1700°F- in less than two seconds. They also cool instantly, eliminating the need for special racks or holding clips and providing complete operator safety.

**MODEL TW–1 "STANDARD MODEL"** For general production work to aerospace and Mil–Spec standards. Self–contained and hand–held. Has adjustable stops for both wire gage and strip length. **$54.95**

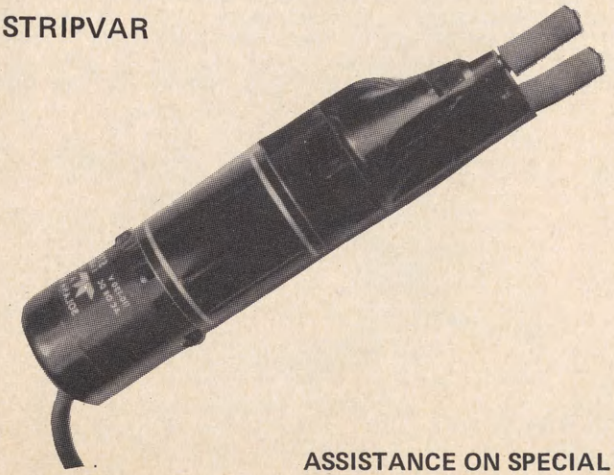


**MODEL TW–2 LN, LONG NOSE** Strips up to 3½" in a single stripping action. Same features as the TW–1 except electrodes are extra long. Can be used for stripping wires in inaccessible areas. **$64.95**



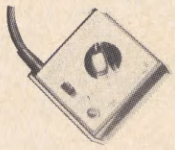
**NOTE:** All models are available with a temperature–control unit at **$30.00** additional.

## STRIPVAR



Unique gage stop that is adjustable from #12 to #43 AWG- STRIPALL blades do not contact or exert any pressure on the conductor itself. The cut is clean and square, and no sleeving is melted into the wire strands. High–temperature insulation is easily cut at any predetermined point and the unwanted slug is quickly removed. Wire ends are ready instantly for soldering or other treatment.

**MODEL TW–3, SLIM NOSE** Unit has 3½" long, narrow electrodes. Used for stripping or restripping wires in computer wells, instrument packages and other enclosures. **$89.95**



**TEMPERATURE CONTROL** Solid state temperature control, is adjustable from 100°F to above 1700°F. Control mounts at electrical outlet. Blades reach selected temperature in less than 2 seconds. **$30.00**

**MODEL TBM BENCH MOUNTING FIXTURE** For holding any STRIPALL in fixed work position. STRIPALL may be removed from fixture when hand–held operation is desired. **$12.50**

**REPLACEMENT BLADES** For all models, **$2.00** per pair.

**STRIPALL MODEL TW-6** Handheld thermal stripper. Designed for removing insulation and outer coverings from single or multiple conductor cable and from coaxial cable up to 5/8" diameter to 1" with special version). Operates at a fixed blade temperature of 1700°F. A rugged alloy blade set a 45° allows stripping at any point in the cable. The lower support anvil has two perpendicular cable troughs. Anvil height is adjustable. Needs no external transformer. **$69.95**

**REPLACEMENT BLADE $4.00**

## HANDHELD, MOTOR DRIVEN WIRE STRIPPER

Quickly removes varnish, other film insulation oxides from component leads. No special training needed. Lightweight, self-contained (only 14 oz.). Eliminates chemicals and bench tanks. Quickly strips several wires at one time. Brushes snap on or off quickly, are low cost, long-lasting and easily dressed. Three sets of brushes in different grades to handle various insulating materials in wire sizes AWG 18 thru AWG 40.

Employs two motor driven, counter rotating brushes. Actuated by a single, thumb controlled lever, which starts motor and regulates brush pressure.

**Model SV-1 STRIPVAR** . . . . . **$89.95**
**No. 276** Dressing Tool and 5 Refills . . . . . **2.00**
**No. 277** Extra 5 Refills . . . . . **2.00**
**No. 251** Coarse Brushes . . . . . **2.95/Pair**
**No. 252** Medium Brushes . . . . . **2.95/Pair**
**No. 253** Fine Brushes . . . . . **2.95/Pair**

**ASSISTANCE ON SPECIAL WIRE–STRIPPING PROBLEMS IS AVAILABLE**

# WIRE STRIPPERS - THERMAL, CO-AX

## THERMAL WIRE STRIPPER—(Bench model or hand tool)

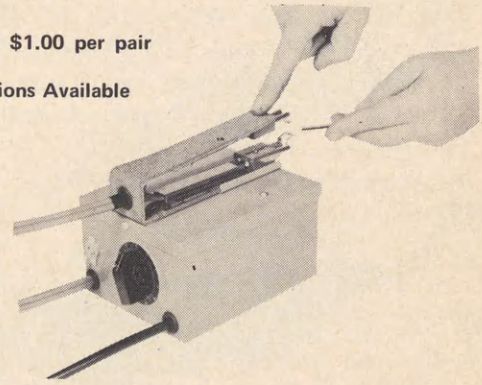
- No blades to cut or nick wire
- Continuously variable heat control
- Strips any size teflon or lower-melting plastics without adjustment.

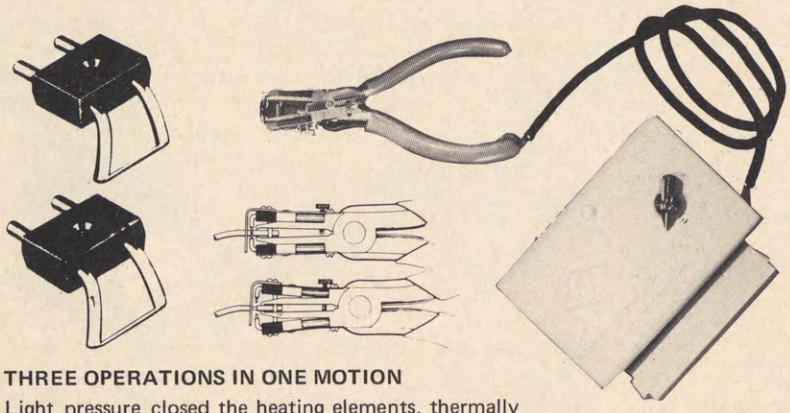
**Meets Mil-specs**—Model G—Wire Capacity: No. 12 AWG to No. 36 AWG (also coaxial cable). Designed especially for production-line operation, this model features speed, ease of operation, versatility, and completely nick-free stripping. Its pincers-type design with parallel heated filaments quickly severs insulation, and a slight pull on the wires removes it. Freedom from nicked or cut strands is assured as no cutting edges are used. Stripper detaches for use as hand tool. Lightweight handle constructed of durable stainless steel covered with a corkneoprene composition hand grip. The grey baked-enamel power-supply case houses a step-down transformer, and a variable transformer connected to the 115 V-AC input. Shipping weight is 10 lbs.

UNIT PRICE (Model G) **$69.50**

REPLACEMENT TIPS **$1.00 per pair**

**Quantity Quotations Available**





**PM1056. . . . . $79.50**

### THREE OPERATIONS IN ONE MOTION

Light pressure closed the heating elements, thermally severing the insulation collar.

A "twist—of—the—wrist" completely severs insulation.

Firmer pressure lifts heating elements, simutaneously clamping stripping jaws upon the severed insulation collar. Now, just pull, and that's it!

### PM-1056 THERMAL WIRE STRIPPER

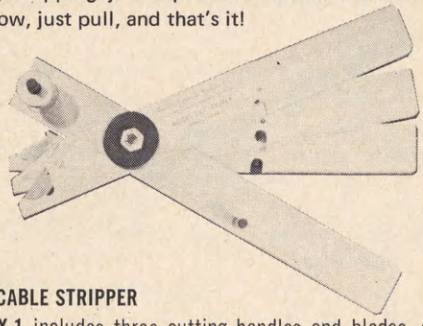
The Model PM 1056 Thermal Wire Stripper is engineered for continuous production. Severs, grips and strips in one combined operation (Patent 3,139,777). No nicks, cuts, or scratches on conductors. No annealing, or beading of insulation. Leaves stranded conductors twisted intact.

Guarded heating elements are hot only during use. Specially engineered heating elements develop full heat in seconds. Plug—in type heating element is replaceable.

Positive hold gripper jaws remove severed insulation collar. Model PM 1056D strips all thermoplastic insulation including teflon, in sizes from #12 to #36 AWG without adjustment. Model PM 1056H—for H Film (Kapton) adapts to wire size #20 to #36 AWG without adjustment. With Model PM 1792 slug removing pliers, may be used with Kapton insulated wire as large as #12 AWG.

Shock proof low voltage operation 2½ Volts maximum at heating element. On—off switch and power—on indicator light operated by placing the hand piece on the treadle. Lightweight and comfortable plier—type hand tool, with non—slip cushion grip plastisol handles.

**PM-1056** Replacement blades . . . . . **$2.95 per pair**



### COAXIAL CABLE STRIPPER

**MODEL CX-1** includes three cutting handles and blades, cable holder, and a series of cutter spacers. When ordering specify cable holder size desired.

PRICE . . . . . **$39.50**

Additional cable holders are available from stock in following sizes: .080", .095", .115", .135", .165", .210", .255", .340", .435", and .480" diameter. Cable holders should be slightly larger than cable diameter.

Cable Holders . . . . . **$4.50** each

Replacement Cutter Blades . . . . . **$4.00** /dozen

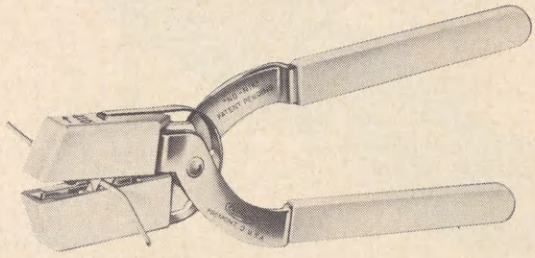
- Prepares cable in ten seconds
- Developed and used by NASA
- Adjustable for most cables and connectors
- Eliminates nicked conductors

The Model CX-1 is extremely flexible in that it is capable of stripping most shielded coaxial cables for most coaxial cables within the range of .075" to .480" O.D. In a single operation it prepares cables for most coaxial connectors which require a step-wise strip. It is also useful in removing only the outer jacket and is quickly adjustable for various stripping configurations.

The CX-1 consists of three independent cutting members plus a fourth member containing a holder for the cable which is rotated in contact with the cutters to sever the insulation or shielding. Depth of cut is adjusted by precision screw adjustments. Cable holders for various co-ax sizes are easily inserted. Each cable holder has a built-in length adjustable to provide any desired length of stripped center conductor. Spacers are provided to permit proper cutter spacing for all commonly used connectors. The entire unit is fabricated of anodized aluminum, and easily replaceable long-life cutter blades are made of hardened tool steel.

**NO-NIK WIRE STRIPPER**—A precision cutting-type stripper for removing insulation mechanically with no nicks, cuts or scrapes to the conductor. These tools are made with cutting apertures accurate to .00015". For increased reliability, each tool is made to strip one wire size only, and handles are color coded to size of cutter holes marked clearly on centering device as shown. OAL-5½" Cutting blades are finest razor blade steel in a permanent assembly. No adjustment of any kind ever needed. Wire which formerly could be stripped only thermally because of nicking can now be stripped mechanically with absolute reliability, due to the unique construction of this revolutionary new tool. Complete instructions for use packed with each wire stripper. . . . . **$9.50** each

(Specify Cutting Blade Diameter When Ordering or Send Sample)



**CUTTING BLADE DIAMETER**—.010 — .012 — .014 — .016 — .018 — .021 — .023 — .025 — .028 — .031 — .034 — .037 — .044 — .054

# WIRE STRIPPERS - MECHANICAL

**FOR FIBRE GLASS**

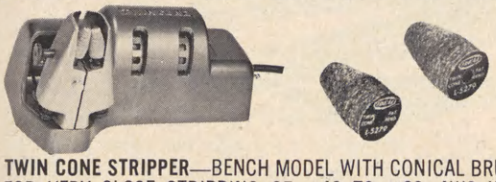
| WIRE GAUGE | No. of HOLES | CATALOG No. (without stop latch & Wire-Stop) | CATALOG No. (with stop latch & Wire-Stop) |
|---|---|---|---|
| 16 to 26 | 6 | 171 | 181 |
| 26 to 30 | 3 | 172 | 182 |

**FOR TYPE EE—1000 VOLT TEFLON WIRE**

| WIRE GAUGE | No. of HOLES | CATALOG No. (without stop latch & Wire-Stop) | CATALOG No. (with stop latch & Wire-Stop) |
|---|---|---|---|
| 16 to 26 | 6 | 174 | 184 |
| 26 to 30 | 3 | 175 | 185 |

**FOR TYPE E—600 VOLT TEFLON WIRE**

| WIRE GAUGE | No. of HOLES | CATALOG No. (without stop latch & Wire-Stop) | CATALOG No. (with stop latch & Wire-Stop) |
|---|---|---|---|
| 16 to 26 | 6 | 177 | 187 |
| 26 to 30 | 3 | 178 | 188 |



**TWIN CONE STRIPPER**—BENCH MODEL WITH CONICAL BRUSHES FOR VERY CLOSE STRIPPING OF #46 TO #30 AWG WIRES. Compact unit for production stripping of film insulation within ⅛″ of coils, armatures, miniature parts, etc. Strips all know types of film insulation without damaging wire. Stripper includes pair of L-5279 fibre glass cone brushes. Motor is 115 V. 60 Cy. 1/20 H.P. Brush Speed, 3400 R.P.M. Size: 10″ long, 5½″ wide, 5″ high.

**TWIN CONE STRIPPER** ..... **$195.00**

**FIBRE GLASS CONE BRUSHES**—⅝″ O.D. at large end, ⅝″ face, 3/16″ arbor hole.

General Purpose (standard) ..... **5279**

Medium Wire, Heavy Insulation ..... **5446**

**REPLACEMENT BRUSHES** (Specify) ..... pr. **4.45**

**NEW PRECISION ROTARY WIRE STRIPPER**—PRECISION NICK-FREE PRODUCTION WIRE STRIPPING of most types of stranded or solid wire . . . especially Teflon, PVC and other thin insulations.

Higher production rates than similar stripping equipment. Its unique blade-spring design eliminates pivots and other wear points allowing it to maintain high precision nick-free accuracy on even the smallest wires and thinnest insulations. Expressly for single-layer insulation, in wire sizes AWG #16—#26. It will strip thin or slick insulations, with thicknesses up to 1/32″ and over-all wire diameters of up to ¼″.

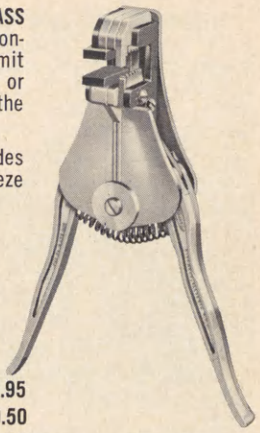
Rotary action tightens twist of stranded wire. Reversing switch permits change of rotation in accordance with the lay of the strands. The adjustable wire stop is indexed and will adjust for any desired stripping length from ⅛″ to 1″.

Blade spring design, consists of a durable edge carbide cutting blade mounted on a leaf spring. The carbide blade can be reversed for double edged economy. Blade assembly is mounted on the stripping head that rotates around the wire. This design eliminates pivot and sliding type construction that loses accuracy with usage. Calibrated adjustment tool is used to set the blade at the precise position required to remove insulation without nicking or scraping the wire. Set-up time is minimal consisting of only installing the proper Wires Guide (see Wire Guide), adjusting the blade, and setting the wire stop. Operator inserts and removes the wire and it is automatically stripped. No buttons to push or other mechanisms to engage.

115 Volt, 60 Cycle, AC, complete with .060″ diameter Wire Guide, calibrated adjustment tool and 9½ foot power cord with grounded plug. Dimensions: 5″ wide, 5″ high, 10″ long.

**FOR GENERAL PURPOSE STRIPPING OF PLASTIC, FIBRE GLASS AND OTHER HARD-TO-STRIP INSULATIONS**—Unique blade construction and extreme holding power of broad jaws permit fast, accurate stripping. Designed to strip without nicking or scraping wire, without marking insulation . . . to meet the most rigid inspection standards.

Simple one-squeeze operation. Just insert wire between blades to desired length (or against adjustable wire stop), squeeze handle and release. Shipping wt.: 14 oz.



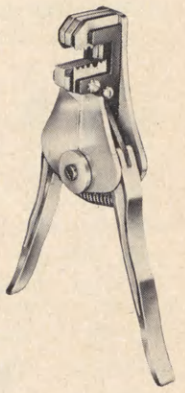
**ACCESSORIES**

**SHORT-STOP LATCH**

**WIRE STOP**

All Models without Stop Latch & Wire Stop ..... **$17.95**
All Models with Stop Latch & Wire Stop ..... **20.50**
Short Stop Latch ..... **1.60**
Wire Stop ..... **1.00**
Replacement Blades (Specify Model by Number)..each **6.95**

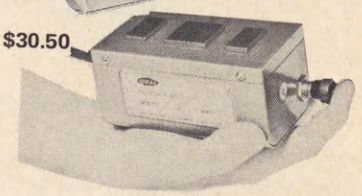
**STRIPMASTER**—THE ONLY HAND STRIPPER WITH AUTOMATIC SINGLE-SQUEEZE FEATURE — One light squeeze strips wire clean up to a full ⅞″. Automatic feature holds jaws open for removing wire without crushing end. Practically eliminates all nicking, cutting or fraying. Blades changed by removing only two screws.



| GAUGES FOR WIRE | No. of HOLES | CATALOG No. |
|---|---|---|
| 14 to22 | 4 | 093 |
| 16 to 26 | 6 | 097 |

093 ..... each **$5.95**
097 ..... each **5.95**
Replacement Blades (Specify by Model No.)..per pair **$1.25**
Wire Stop ..... each **1.00**

**$72.50**

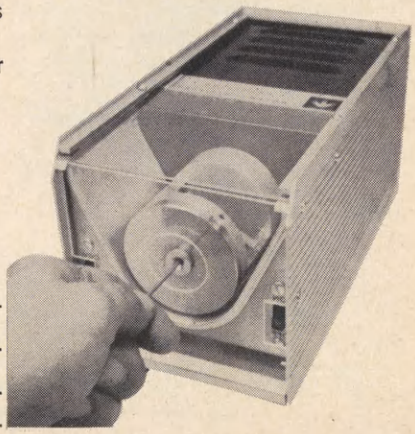


**$30.50**

| DEMAGNETIZER | | |
|---|---|---|
| Model | 13-001 Medium Duty | 13-011 Hand Type |
| Size | 5½ x 10 x 4 | 2½ x 4 5/8 x 2 3/16 |
| Specs | 115 v | 50-60 cy |

**WIRE GUIDE**—Wire Guides are available in 23 sizes from .040″ through .250″ wire diameter over the insulation. Select next larger wire guide than overall diameter of insulation. Order individual Wire Guides as required. Sizes available:

| Diameter | Diameter | Diameter |
|---|---|---|
| .040″ | .080″ | .140″ |
| .045″ | .085″ | .150″ |
| .050″ | .090″ | .170″ |
| .055″ | .095″ | .190″ |
| .060″ | .100″ | .210″ |
| .065″ | .110″ | .230″ |
| .070″ | .120″ | .250″ |
| .075″ | .130″ | |



**ROTARY WIRE STRIPPER** ..... **$225.00** ea.
15° Blade (Carbide) for single layer insulations up to 1/32″ ..... **18.00** ea.
45° Blade (Carbide) for insulation up to 1/16″ ..... **18.00** ea.
**WIRE GUIDES** ..... **4.00** ea.

# WIRE STRIPPERS

**THERMO STRIP**—HAND MODEL THERMAL WIRE STRIPPER FOR PLASTIC-INSULATED WIRE—Thermo-Strip is intended for stripping applications of the most critical nature, where absolutely no damage to conductors or wire insulation is permissible. It can be used for all types of thermo-plastic insulations, including Teflon, and was designed for the exacting requirements of precision electronic equipment such as missiles, aircraft, computers and instruments. It is designed as a wire stripper—not a converted soldering tool.

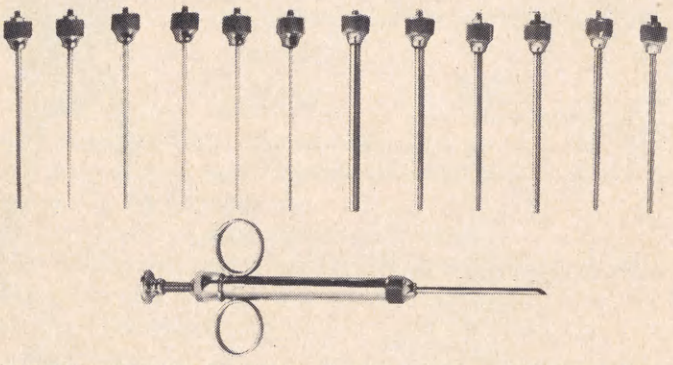
Heavy duty power unit. Stepless, infinitely variable heat control permits setting to exactly the right temperature for the particular job. Unit has pilot light, automatic thermal overload protection, and is case-grounded through three-conductor cord.

**HAND OR BENCH USE**—Pincer type, used as flexible hand tool or clipped to power unit for bench use. Heat isolators assure operator comfort. Adjustable for any strip length up to ¾". Elements are easily replaceable.

**PINCER TOOL & POWER UNIT**—Set includes power unit, pincer tool, set each of heavy and medium duty heating elements, wire stop. Shipping weight 9 lbs.

**REPLACEMENT HEATING ELEMENTS FOR PINCER TOOL:** (packed 6 pair per package. Shipping Wt. Approx. 2 oz.)

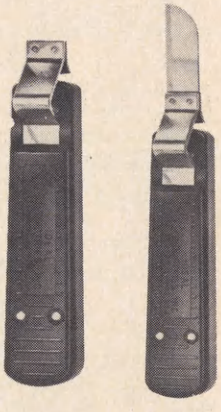
| | Catalog No. |
|---|---|
| Medium Duty, shallow indent | **5589** |
| For Restricted Area Stripping | **5751** |
| Flat & Extra Wide for Multi-Wire Stripping | **5753** |
| THERMO STRIP COMPLETE | **$70.50** each |
| Replacement Elements (Specify Type) | **$2.40**/pkg. of 12 |



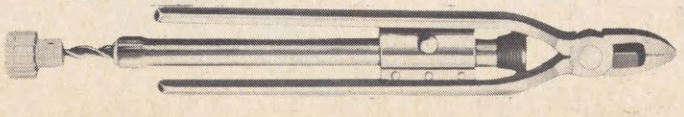
**IMPROVED LEAD EJECTOR** A close tolerance lead ejector for pigtail forming without braid deformation. Using the internal ejection principal the unit will fit all inner leads between 0.036" and 0.175" diameter. No need to order special plungers, one unit fits all with 13 individual plungers. Smooth action helps to pigtail multiple conductor cables. **Complete unit . . . . . $73.50**

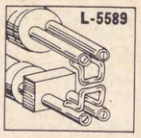
**SWIVEL BLADES CABLE STRIPPER** cuts outer sheathing without damaging inner conductors coaxial and power cables 5/16" through ¾" O.D. Strips a wide variety of insulations. Simply insert cable, rotate tool then pull it along cable for axial cut.

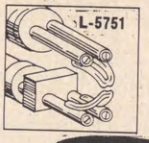
| Catalog No. | | Price |
|---|---|---|
| **45-127** | with Utility Knife . . . | **$6.95** |
| **45-128** | with Utility Knife . . . | **.5.95** |
| **L-7486** | Blades (pkg. of 2) . . . . | **.1.25** |

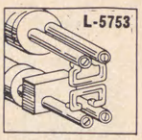


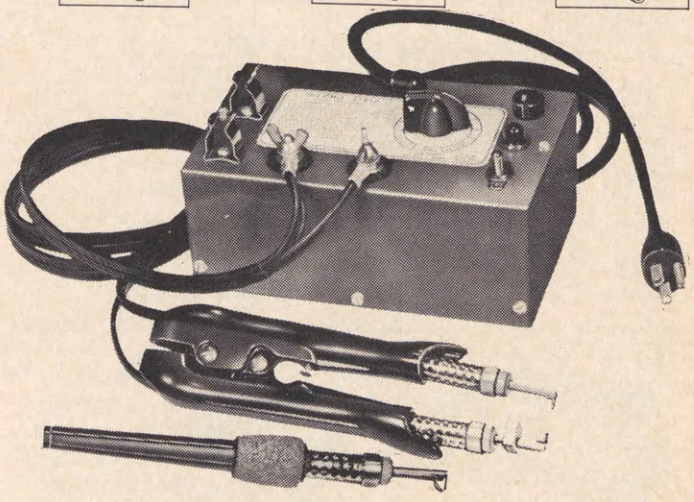
- Ball bearing guide
- Precision spiral actuator
- Improved locking mechanism
- Metal Knob





**REPLACEABLE TIP SNAP RING PLIER SET**—
Three basic tip diameters will handle a wide variety of rings, both external and internal.

CONTENTS:
1. Internal Plier (445-A) with 4 pr. assorted tips
2. External Plier (446-A) with 4 pr. assorted tips
3. Entire kit contained in plastic box.
4. Separate small plastic box within kit for tips:

**444-37**—Two pairs 90 degree angle, .035 dia. tips
**444-45**—Two pairs straight .045 dia. tips
**444-46**—Two pairs 45 degree angle, .045 dia. tips
**444-60**—Two pairs straight .060 dia. tips

**444K-KIT . . . . . $8.20** COMPLETE

**ROTARY CABLE STRIPPER** Strips all cables up to ½ inch diameter. Includes scale for exact stripping measurements. Uses ordinary single edge razor blade. Holds cable under spring tension. Rugged, heavy gauge steel construction.

**S-1 $3.50 ea.** 10 or more **$3.00 ea.**

**FAST ACTION WIRE TWISTERS**—This handy tool is now being used in production by leading aircraft manufacturers as a maintenance tool at airline service depots and for servicing military aircraft. Designed for handling safety wire .015" to .060" diameters.

Grips, twists, and cuts safety wire.—The only one-hand operated wire twister with automatic spring return. Squeeze, press button, and it locks. Squeeze again and it unlocks. Jaws are tapered for easy access. Instant return drive clutch assures smooth operation and longer life.

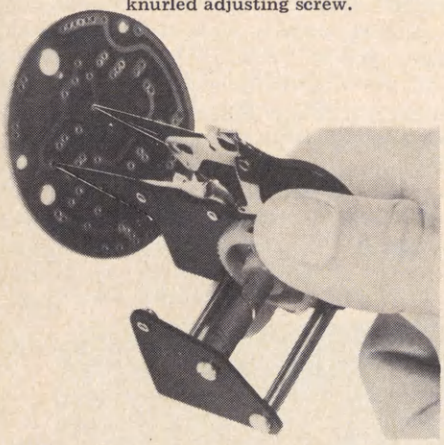
Model **#109 left . . . . . $16.75** **#120 right . . . . . $16.75**



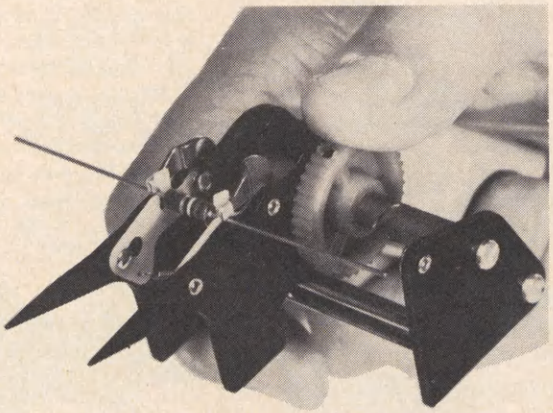
ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# LEAD BENDERS AND FORMERS

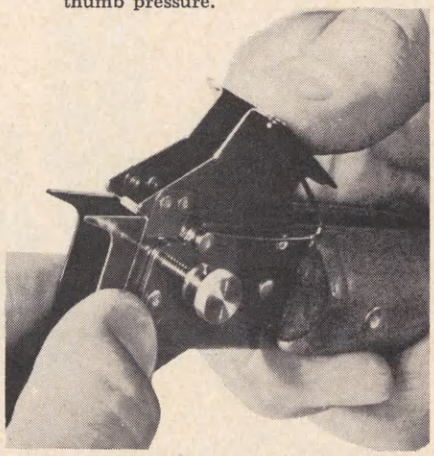
Match pointers with components lead holes by rotating knurled adjusting screw.



Bend leads against sides of pointers with thumb and forefinger.



Slip component in lead guides and clamp in place with light thumb pressure.



## N-300

Totally eliminates trail and error bending of component leads. Bent leads are free of all flat spots, nicks, and surface blemishes. Fast, continuously adjustable setting of space between bends (0.360" min. 1.725" max.). Accomodates all components up to 0.5" diameter and 1.5" long. Minimum distance between end of component and bent lead 0.110". Made from hard anodized aluminum for maximum strength and wear. Ideal hand tool for prototype development. Short run production and circuit repair. Plastic lead guides are now replaceable. Slip out worn guides and slip in new guides without tools. One pair of guides and plastic tubing for lead clamps contained inside handle. Pointers are sufficiently strong and rigid to maintain calibrated position under everyday usage, however they can be sent to special positions or returned to normal if damaged.

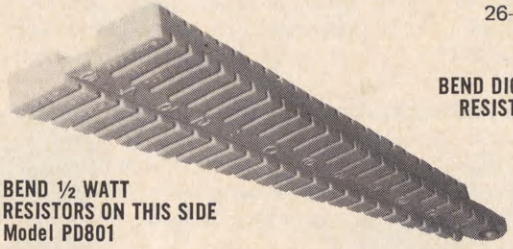
1–10 **$29.50 ea.** 11–25 **$24.50 ea.** 26–up **$21.00 ea.**

## N-400

For micro electronic components. Will increase production 50 to 75%. Labor savings pay for the N-400 in one week or less. Specially designed for micro size components from the smallest dot size diodes, capacitors, and resistors to ¼ watt carbon resistors. Made from stainless steel or maximum strength and wear resistance. Fast, continuously adjustable setting of space between bends (0.25" min. 0.55" max.). Accomodates all components up to 0.25" diameter and 0.50" long. Minimum distance between end of component and bent lead 0.025".

1–10 **$19.50 ea.**
11–25 **18.50 ea.**
26–up **17.50 ea.**

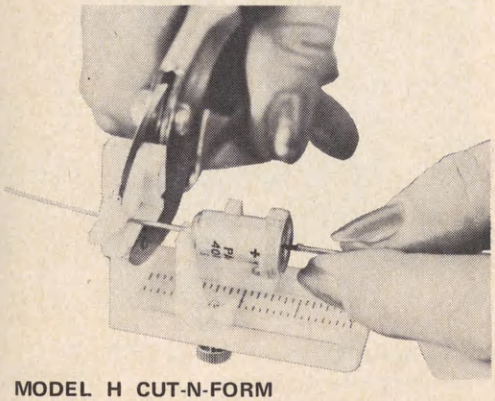
**SPEEDY BEND**—THE LEAD FORMING TOOL YOUR COMPANY CAN AFFORD AT EACH BENCH. BEND ONE COMPONENT OR A HUNDRED IN LESS TIME THAN IT TAKES TO SET UP AND RUN ANY AUTOMATIC BENDER. One tool forms jumper, ¼ and ½ watt resistor, and diode leads. Graduations in 0.05-inch increments on 0.4 to 1.5 inch centers enable user to quickly and easily select proper slot. Radiused edges eliminate scarring of leads. Made of high-impact cycolac plastic. Savings realized by increased production rates and decreased rework to printed circuit assemblies quickly offsets the modest initial cost of providing each production worker with a Speedy Bend. Dimensions: 5½ x 1½ x ¼". Components are centered on boards, enhancing appearance of finished products. Reduction of component losses.



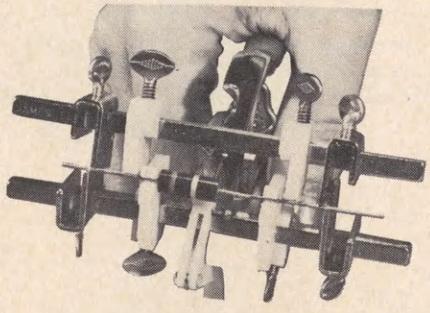
**BEND DIODES AND ¼ WATT RESISTORS ON THIS SIDE**

**BEND ½ WATT RESISTORS ON THIS SIDE**
**Model PD801**

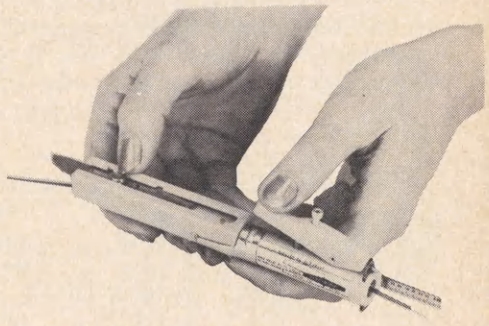
**1-11 $2.95**
**12-50 2.50**
**51-100 2.25**
**100 + Ask for Quotations**



**MODEL H CUT-N-FORM**
It reduces assembly time and produces a finer finished job. No metal-to-metal contact. Tough, long-life Delrin jaws insure uniformity of quality, eliminates scratching, nicking of lead wires, and flattening. **$19.50**
Replacement Jaws . . . . . **$3.00 ea.**

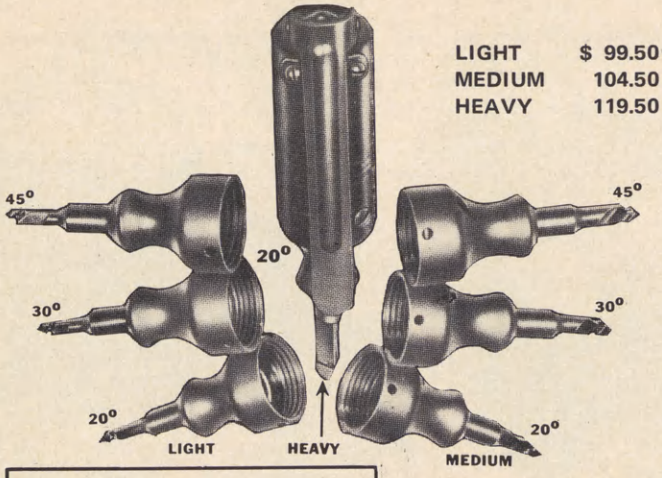


**MODEL-HD CUT-N-FORM DOUBLE END**
Length of horizontal bar 3½". Finger operated ejection trigger. Shearing jaws hardened to 55 to 60 Rockwell C. Bending Jaws of Delrin.. . . . . **$50.00**
Set of 8 Replacement Jaws. . . . . **15.00**

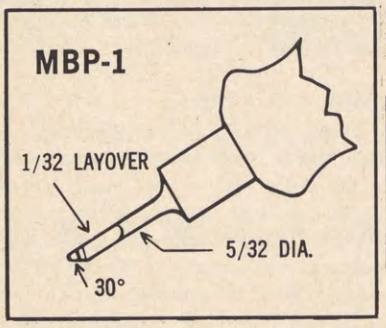


**SNIP-N-STRIP**
The complete tool kit on a pencil clip. Weight is only 1½ oz. It bends resistor leads and measures them for cutting. Strips and cuts wires and has a retractable skiving blade. . . . . **$9.95**

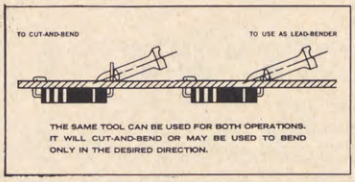
# LEAD BENDERS - BEND-EZE (AIR - ACTUATED)




| | |
|---|---|
| LIGHT | $ 99.50 |
| MEDIUM | 104.50 |
| HEAVY | 119.50 |

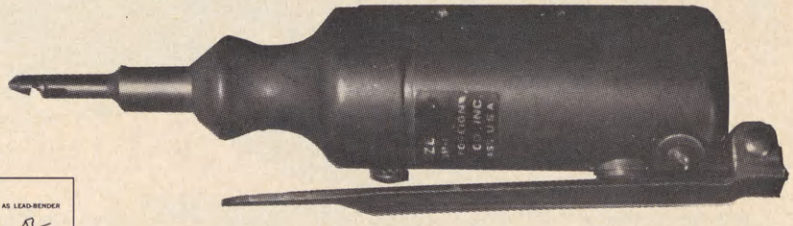



**Foot Control Model**
**. . . . . Add $15.00**


TO CUT-AND-BEND
TO USE AS LEAD-BENDER
THE SAME TOOL CAN BE USED FOR BOTH OPERATIONS. IT WILL CUT-AND-BEND OR MAY BE USED TO BEND ONLY IN THE DESIRED DIRECTION.

## BEND-EZE

Gives you three working angles and seven interchangeable heads with just one cut-and-bend air-hand tool for printed circuit applications. Three light heads for .010-.028 diameter wires. Three medium heads for .010-.038 diameter wires. One large head for .010-.050 diameter wires. Operating at 60-100 lbs. of air pressure, it efficiently cuts and bends leads up to .050 diameter quickly, easily. Cutting quills are made from high-speed steel drill blanks; quill holder from air-hard tool steel to assure long cutting life. Standard layover on all tools is approximately 1/16" long. Specials are priced upon application. If left-handed tools are desired, please specify. Lightweight (8 oz.) to lessen operator fatigue. Results comply with all existing military and NASA specifications.



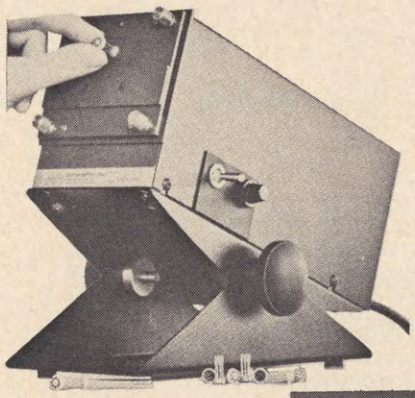
## MBP-1 SUB-MINIATURE

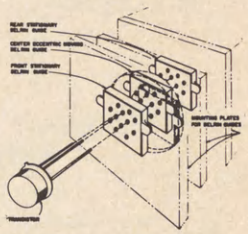
On transistors of up to ¼ Watt or up to .025 diameter lead wire only. Operates at a maximum of 40 lbs. of air pressure. All Bend-Eze tools available for foot operation denoted by (F). When foot-switch is used, operator has pencil style control. **$119.50**

## #120 COMPONENT LEAD STRAIGHTENER

Leads touch no metal, only inexpensive replaceable Delrin inserts. Standard inserts accommodate most common lead configurations. Blank inserts available for drilling to special requirements. Adjustable pedestal gives operator convenience and efficiency. Component Lead Straightener makes fast, gentle work of straightening the leads on finished units. The action is orbital. Inserts serve for approximately eight hours of production line operation before wear requires replacement. New inserts can be installed with no special tools.

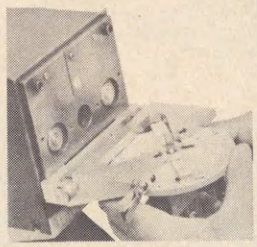
Standard inserts provided accept up to four TO-18 leads or up to eight TO-5 leads. In use, the operator simply places the leads into the appropriate openings, feeds the component in until it touches the faceplate, then removes it with all leads neatly tailored into position. A combing fixture is available as an accessory to pre-align component leads before insertion. . . . . **$695.00**

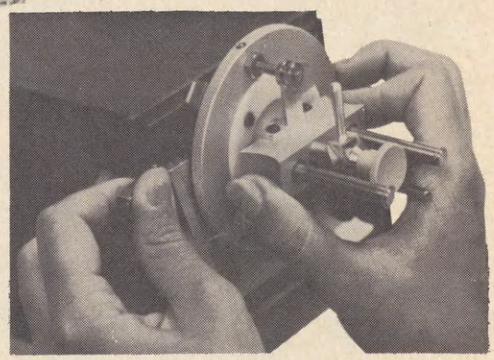




## #60 COMPONENT LEAD POSITIONER

This attachment makes it possible for operator to increase efficiency of the straightening operation as well as to produce better work. Combs and positions up to eight leads, of TO-5 or similar package. Guides leads through entire straightening cycle. No metal in contact with component because of Delrin contact points. Easily attached down to horizontal position to lead. . . . . **$385.00**





**Delrin Inserts for Model #120 Lead Straightener**

| Pattern Number | No. of Holes | Hole Circle | Hole Spacing |
|---|---|---|---|
| (Blank)* 010 | None | None | None |
| 020 | 12 | .100 & .200 | Equal |
| 030 | 6 | .200 | 45°, 45°, 90° |
| 040 | 4 | .200 | Equal |
| 050 | 10 | .230 | Equal |
| 060 | 8 | .100 | Equal |
| 070 | 4 | .100 | Equal |
| 080 | 8 | .200 | Equal |

*Blank is furnished for drilling to special configurations as needed.
Prices per insert 1-1000 **$.30** 1000 & Up **$.25**

**Combs for Model #60 Lead Positioner**
Price per set of 4 Combs **$12.50**

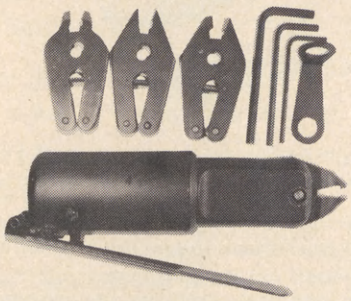
| Pattern Number | Application |
|---|---|
| 80 | Use for 3, 4, 6, or 8 Leads on .200" pin circle |
| 100 | Use for 10 Leads on .230" pin circle |

# PNEUMATIC PLIERS AND CUTTERS

| | | |
|---|---|---|
| CC-1 | Cutter-crimper for soft wire up to .050 dia. **$15.00** | |
| CC-2 | Cutter-crimper for soft wire up to .030 dia. **$15.00** | |
| MCC-1 | Miniature cutter-crimper for soft wire up to .030 dia. **$25.00** | |
| CD-1 | Cutter dykes for either flush or semi-flush cut on .050 dia. wire. **$15.00** | |
| CD-2 | Cutter dykes for either flush or semi-flush cut on .030 dia. soft wire. **$15.00** | |
| MCC-2 | Vertical miniature cutter-crimper for soft wire up to .030 dia. **$25.00** | |
| CD-1<br>CD-2 | Made to order.<br>with Riser Pads **$38.00** | |
| CD-3<br>Long | 15° dykes. **$38.00** | |

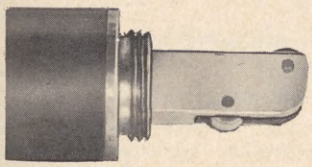
**Foot Control Model. . . . . Add $15.00**

For the most efficient printed circuit and electronic production assembly ever! Interchangeable Cutter-crimper and Dyke Heads insure the right tool for the right job. Unlimited versatility. Saves costs and speeds production by reducing operator fatigue. Either right or left hand use. Externally adjustable jaw may remain in tool while being adjusted. Double action power-pack for powered closing and return. Height and width of crimp are controllable. Rugged, lightweight metal construction throughout with tool steel jaws for increased life. Jaws can be separated for easy sharpening or they may be returned for factory guaranteed resharpening. All jaws finished in rust-resistant black oxide. **Power Pack. . . . . $89.50**

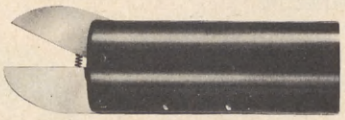


**K-5 SQUEEZE EZE KIT** Includes: SP-01, CC-1, CD-1, MCC-1, CD-2 . . . **$149.50**

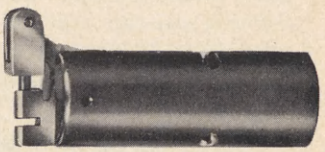
**NEW MINIATURE SQUEEZE EZE**
For use on wire up to 0.030" max. with **MCD1** 15° dykes or **MUCC1** vertical cut and crimp. . . . . **$79.50**



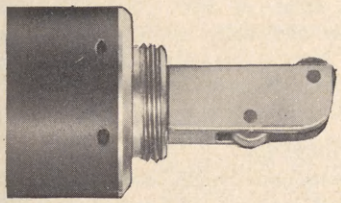
**¾ TON POWER PACK**
**$57.00**



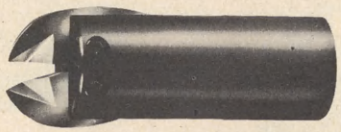
**STANDARD SOFT JAWS**
**$36.50**



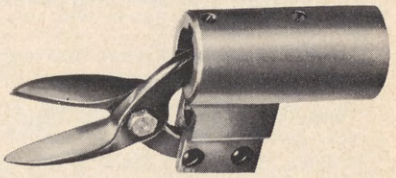
**1/8" HOLE PUNCH**
Up to 16 GA steel
**$350.00**



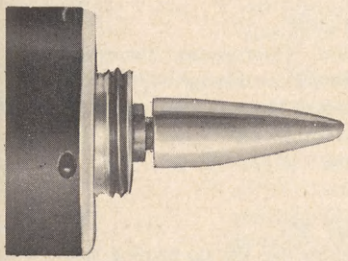
**1 TON POWER PACK**
**$97.00**



**DIAGONAL CLIPPERS**
**$52.00**

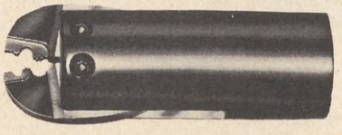


**AVIATION SHEAR CUTTERS**
**SM 1** cuts left **SM 3** cuts straight
**$62.00**

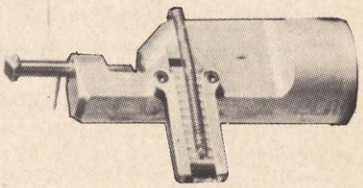


**1½ TON POWER PACK**
**$127.50**

ALL DRIVING CAMS ARE INTERCHANGEABLE WITH ALL POWER PACKS.

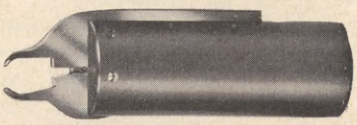


**TERMINAL CRIMPING TOOLS**
**$77.00**



**ASSEMBLY TOOL**
For spiral and drive lock pins.
**$375.00**

**BENCH STAND & FOOT TREADLE**
**$27.50**



**PLASTIC SPRUE CUTTER**
**$52.00**

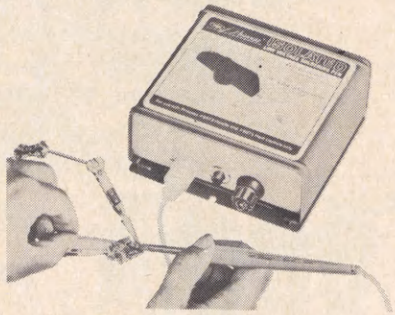
# UNGAR SOLDERING IRONS

**QUANTITY DISCOUNTS:** 1 - 9 Net 10 - 49 20% 50 + 25%

**#6970 ISOLATED LOW VOLTAGE SOLDERING STATION**
12 volt insulation transformer isolates soldering pen from line voltage. Dial tip temperatures from 400°F to 900°F. Lightweight miniature soldering pen has faster heat recovery. Protects semi-conductor components.
Complete package includes: 120 volts 60 cycle low voltage isolation transformer, with 10 volts 60 cycle 1.35 amp. output. #6971 heat capsule, #6961, 6950 and 6952 soldering nibs. Shipping weight 3 lbs. 14 oz. . . . . **$28.28**

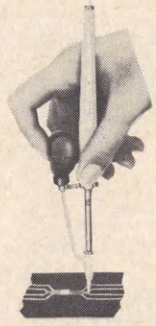
**PRINCESS SOLDERING NIBS**
All Ungar Princess soldering nibs and Ungar Standard Line 1/8" tiplets thread into the #6971 heat capsule.

**HANDLE OR HEAT CAPSULE $3.98**



**#4025 HOT-KNIFE**
Hot-Knife includes a 47½ Watt Heating Unit with collet closure and one stainless steel blade. Handle not included. Blade temperature 500°F. Hot-Knife can be used in either Ungar's red Standard Line Handle #776, or the new #777 "Clean-Room" Handle. Cuts thin film epoxy coatings on printed circuit boards to get at components. Hot-Knife also cuts plastic films, trims flash from rubber and plastic molded products. When used to cut dacron, nylon and other synthetic materials. Hot-Knife seals the cut edges and prevents ragged edges. All X-acto blades with ¼" tang may be used . . **$3.65**

**#6992 UNGAR PRINCESS de-SOLDERETTE**
For removal of microminiature components and I.C. chip re-work.
Includes Princess 180-watt heat capsule with tip temperature in 600°F range. Ungarized white coating inside and outside of collector body prevents molten solder from sticking and clogging. Replaceable tip with .033 aperture is stainless steel lined and prevents clogging. Vacuum at tip rated at 5.5 ounces per sq. inch. **$13.95 ea.**

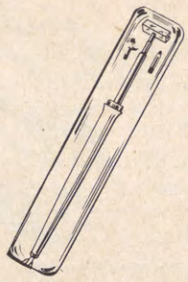


**#400 KLEEN-TIP SPONGE AND TRAY** Surface slits in sponge cleans tips thoroughly, prevent solder throw-back. Reduces tip oxidation, helps prevent contamination. . . . . **$1.13**

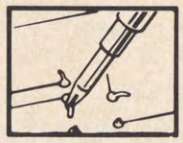
**#8000 SOLDERING IRON HOLDER** A ruggedly built soldering iron holder, designed to protect the operator and iron. The heavy duty holder attaches quickly to top, side, or underside of bench. Can be used with both #776 and NEW #777 handles. . . . . **$.65**

**#8001 ANTI-SEIZE** Specially formulated lubricant, reduces tip thread seizure and improves heat transfer. Will prolong thread life. **$.65**

**#7625 COIL-A-CORD** Keeps cord coiled out of the way of the operator. Prevents burned cords. It can be used on appliance cords and other electrical hand tools. . . . . **$1.25 ea.**



**#6939 DE-SOLDER KIT FOR IC AND "TO" PACKAGES!**
A complete de-solder kit containing a 3-wire grounded Princess Handle, 15 watt Heat Capsule and three special de-solder tips, for de-solders in-line IC's. Removes "TO" packages with ease. De-solders and straightens bent leads in one operation. . . . . **$12.70**



**#6947**
**SLOTTED LEAD STRAIGHTENER**
Melts and straightens bent tabs and leads. Nickel plated. Tip temp. 680°F.
**$1.65**

**#6942**
**FOR IN-LINE IC'S**
Removes 16 pin In-Line IC's. Iron clad, nickel plated and pre-tinned. Tip temp. 550°F.
**$1.95**

**#6945**
**FOR "TO" PACKAGES**
(.375) diameter
For "TO" packages and transistors. Iron clad, nickel plated. Pre-tinned. Tip temp. 680°F.
**$1.95**

**Additional tips available**
**#6943** .600 dia., 640°F @ 15 watts **$1.95**
**#6944** .500 dia., 650°F @ 15 watts **$1.95**
**#6946** .280 dia., 700°F @ 15 watts **$1.95**

**#6940**
For flat pack leads, 650°F @ 15 watts **$2.05**

**#6941**
For flat packs, 700°F @ 15 watts **$1.95**

**MODEL #7000 MINIATURE SOLDERING CUP**
Adjustable temperatures from 400° to 750°F. and thermostatically controlled. Cool operation, no excessive external heat radiation. Rugged die-cast construction is designed for stability. Machined aluminum bronze melt cup, with ring. Cup's solder capacity is 1 ounce with a cup depth of 3/8". 3-wire grounded cord, 120 volt, AC-DC. Net weight 1¼ lbs. . . . . **$21.23**

**#7070 TECHNICIANS SOLDERING KIT**
A complete soldering iron kit with pastel handle with "Clean Cool" Grip, heating unit (37½W) three interchangeable thread-on copper tips and a spool of 60/40 rosin core solder for electronic assembly and service. . . . . **$4.88**

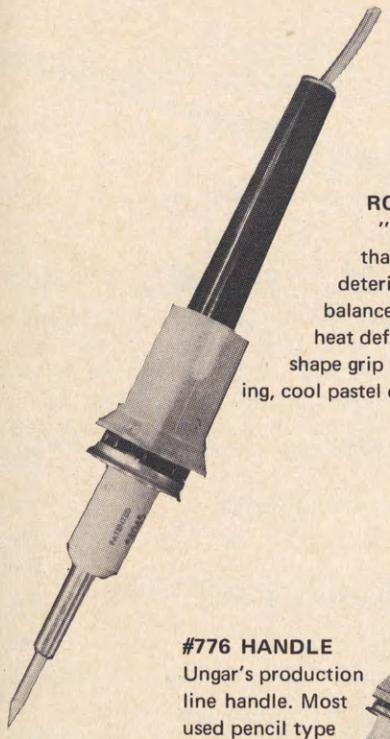
**#7805 "SOLDER-OFF"**
High heat resistant *fluorocarbon material used in the tip will not scratch or damage delicate PC boards. Tip is easily removed for cleaning solder from the bulb. Use it with either IMPERIAL or STANDARD line soldering irons. . . . . **$1.28**

**#270 UNGAR DE-SOLDERING KIT**
A complete seven piece de-soldering kit containing lightweight pencil handle with full length, extra flexible insulated cord; the Ungar Super Hi-Heat Unit #4045 with special 3/16" tap, plus the #857 slotted tip, #856 5/8" cup tip, #855 3/4" cup tip, #854 1" cup tip and #858 bar tip. Melts solder on multiple connections simultaneously. . . . . **$8.00 ea.**



**ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA**

# UNGAR SOLDERING ACCESSORIES



**#777 CLEAN ROOM HANDLE**
"Clean-cool grip that won't dust or deteriorate. Perfect balance, stainless steel heat deflector, octagon shape grip to prevent rolling, cool pastel color. **$1.87**

**#776 HANDLE**
Ungar's production line handle. Most used pencil type iron in the electronic industry.
**$1.65**

All tips and heating units shown on the right can be used interchangeably in either handle.

**IMPERIAL**
The soldering iron that can be tailor made, at the bench, to meet constantly changing soldering requirements.

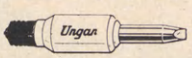
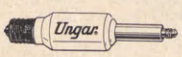
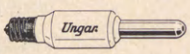
**PERMA-COOL HANDLE**
Features a heat resistant octagon shaped collar. Prevents rolling and patented heat sink principle evenly dissipates heat. Keeps handle cool, comfortable all day long. Perfectly balanced for easy, finger tip handling.

#6100-1 Turquoise
#6100-2 Beige
#6100-3 Ivory
#6100-5 Black
**Specify $1.52 ea.**

**CORD SETS**
**STANDARD 2-WIRE**
#6102-1 Turquoise
#6102-2 Beige
#6102-3 Ivory
#6102-5 Black
**Specify $2.22 ea.**

**GROUNDED 3-WIRE**
#6103-1 Turquoise
#6103-2 Beige
#6103-3 Ivory
#6102-5 Black
**Specify $3.88 ea.**

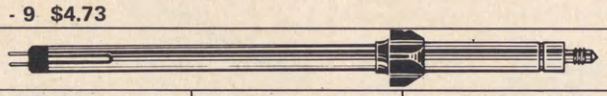
**QUANTITY DISCOUNTS:** .1 - 9 Net 10 - 49 20% 50 + 25%

| SOLDERING TIPS | 47½W $3.17 | 37½W $1.92 | 23½W $1.52 |
|---|---|---|---|
| | #4033 850°F to 1,000°F CHISEL TIP, LONG TAPER Tip 1 5/8" Long, 1/4" Wide. Tellurium Copper, Iron Clad. Silver Plated. | #1233 750°F to 800°F CHISEL TIP, LONG TAPER Tip 1 5/8" Long, 1/4" Wide. Tellurium Copper. | #533 650°F to 700°F CHISEL TIP, LONG TAPER Tip 1 5/8" Long, 3/16" Wide. Tellurium Copper. |
| | #4036 850°F to 1,000°F PYRAMID TIP Tip 1 1/8" Long, 3/8" Dia. Tellurium Copper, Iron Clad. Silver Plated. | #1236 750°F to 800°F PYRAMID TIP Tip 1 1/8" Long, 5/16" Dia. Pure Solid Armco Iron, Silver Plated. | #536 650°F to 700°F PYRAMID TIP Tip 1 1/8" Long, 5/16" Dia. Tellurium Copper. |
|  | #4039 850°F to 1,000°F CHISEL TIP, SHORT TAPER Tip 1 1/8" Long, 3/8" Dia. Tellurium Copper, Iron Clad, Silver Plated. | #1239 750°F to 800°F CHISEL TIP, SHORT TAPER Tip 1 1/8" Long, 3/8" Dia. Pure Solid Armco Iron, Silver Plated. | #539 650°F to 700°F CHISEL TIP, SHORT TAPER Tip 1 1/8" Long, 5/16" Dia. Tellurium Copper. |
| THREAD ON HEAT UNITS  | #4037 850°F to 900°F | #1237 750°F to 800°F $2.13 | #537 600°F to 650°F $1.77 |
| 1/8" HEAT UNITS  | #4035 800°F to 850°F | #1235 700°F to 750°F | #535 600°F to 650°F |
| 3/16" HEAT UNITS | #4045 800°F to 900°F This unit also designed for de-soldering tips shown on Pg. 3. | — | — |

**All Tiplets $.60 each except those marked otherwise.**

| | | | |
|---|---|---|---|
| #PL-331 Pencil, Iron clad, cadmium copper, silver plated. | #PL-338 Tapered Needle, Iron Clad, tellurium copper, silver plated. | #PL-823 Pyramid. Iron clad, tellurium copper, silver plated. $.70 | #PL-111 Pencil. Iron clad, tellurium copper, silver plated. |
| #PL-332 Pencil, Offset. Iron clad, cadmium copper, silver plated. | #PL-340 Stepped Micro-Spade. Iron clad, cadmium copper, silver plated. | #PL-824 Chisel, Long Taper. Iron clad, tellurium copper, silver plated. $.70 | #PL-113 Chisel. Iron clad, tellurium copper, silver plated. |
| #PL-333 Chisel, Long Taper. Iron clad, cadmium copper, silver plated. | #7155 Stepped Chisel, Iron clad, cadmium copper, silver plated. | #PL-833 Chisel, Long Taper. Iron clad, tellurium copper, silver plated. $1.00 | #PL-114 Stepped Micro-Spade. Iron clad, tellurium copper, silver plated. |
| #7012 Precision Point, Cadmium Copper. .770 L. x .125 D. stepped to .090 D., ground and honed to .005 P. | #7062 Precision Point, Cadmium Copper, Iron Clad, Silver Plated. .770 L. x .135 D. stepped to .098 D., ground and honed to .010 P. $1.13 | #PL-834 Chisel, Long Taper, Offset. Iron clad, tellurium copper, silver plated. $1.00 | #PL-116 Pyramid, Iron clad, tellurium copper, silver plated. |

**1 - 9 $4.73**



| | | | |
|---|---|---|---|
| #6202 - 25 WATTS 600°F to 800°F | #6201 - 30 WATTS 650°F to 850°F | #6200 - 40 WATTS 750°F to 950°F | #6203 - 60 WATTS 900°F to 1,000°F |

#6206 - 15 WATTS 614°F to 743°F

**15W MICRO-TIPS** **1 - 9 $1.24**

| | | | |
|---|---|---|---|
| #6550 Tapered Screwdriver, Iron Clad, Gold Plated (24 kt.) .040 x .40 long. | #6551 Stepped Spade, Iron Clad, Gold Plated (24 kt.) .050 x .40 long. | #6553 Stepped Chisel, Iron Clad, Gold Plated (24 kt.) .050 x .40 long. | #6554 Stepped Pencil, Iron Clad, Gold Plated (24 kt.) .050 x .40 long. |

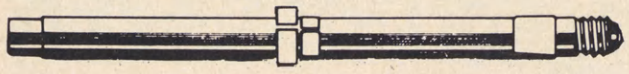
**MINI-TIPS** **1-9 A $1.06 B $.48**

| | | | |
|---|---|---|---|
| #A6304 Micro-Chisel, 24 kt. Gold Plated. Iron Clad, 3/64 x 1/2 long. | #A6305 Micro-Spade, 24 kt. Gold Plated. Iron Clad, 3/64 x 1/2 long. | #B6312 Pencil, Tellurium Copper, 1/8 x 3/4 long. | #A6313 Pencil, 24 kt. Gold Plated. Iron Clad, 1/8 x 3/4 long. |
| #A6316 Pencil, Offset, Iron Clad, Gold Plated (24 kt.) 1/8 x 3/4 long. | #B6318 Long Taper Chisel, Tellurium Copper 1/8 x 3/4 long. | #A6319 Long Taper Chisel, Iron Clad, Gold Plated (24 kt.) 1/8 x 3/4 long. | #B6324 Long Taper Pyramid, Tellurium Copper 1/8 x 3/4 long. |
| #A6325 Long Taper Pyramid, Iron Clad, Gold Plated (24 kt.) 1/8 x 3/4 long. | #A6331 Screwdriver, 24 kt. Gold Plated. Iron Clad, 1/8 x 3/4 long. | #A6333 Long Taper Pencil, Iron Clad, Gold Plated (24 kt.) 1/8 x 3/4 long. | #A6372 Screwdriver, 24 kt. Gold Plated. Iron Clad, 3/16 x 3/4 long. |
| #A6481 Tapered Screwdriver, Iron Clad, Gold Plated (24 kt.) 3/32 x 3/4 long. | #A6482 Micro-Spade, Stepped, Iron Clad, Gold Plated (24 kt.) 3/64 x 1/2 long. | #A6336 Spade, 24 kt. Gold Plated. Iron Clad, 1/8 x 3/4 long. | #6526 $13.49 BERYLLIUM OXIDE SOLDERING TIP |
|  | #6391 Tellurium Copper, .770 L. x .125 D. stepped to .090 D., ground and honed to .005 P. . . . . $.74<br>#6392 Tellurium Copper, Iron Clad, Gold Plated (24 kt.). .770 L. x .135 D. stepped to .098 D., honed to .010 P.. . . . . $1.50 | | |

# PRINCESS SOLDERING IRONS - SOLDER-WICK

**QUANTITY DISCOUNTS:** 1-9 Net 10-99 20% 100 + 25%

**UNGAR PRINCESS** for precision soldering in micro electronic circuitry. Exceptionally lightweight, efficient and economical, requires no transformer. Handles, heat capsules and soldering nibs. Thread together with fingertip ease to make the most versatile soldering pen ever engineered.

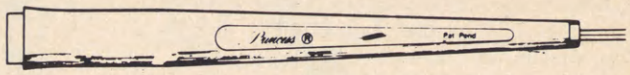


**HEAT CAPSULES**

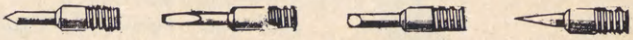
**#6906** Tip temperature from 400°F to 450°F – 6 Watt **$3.75**
**#6910** Tip temperature from 550°F to 650°F – 10 Watt **3.75**
**#6915** Tip temperature from 700°F to 800°F – 15 Watt **3.75**
**#6918** Tip temperature from 900°F to 1000°F – 18 Watt **3.75**

**HOLDER AND TIP CLEANER** **#6991 Refill sponge.** **$.49**

**PACKAGED COMBINATION** . . . . . **$10.66**
**#6900 Ten Watt Iron and Special Holder**
Complete Iron: two wire handle
**(#6902)**, 10-W Heat Capsule
**(#6910)** and three PRINCESS Soldering Nibs:
**#6950** Pencil **#6951** Screwdriver **#6952** Spade
**#6990** PRINCESS Holder with specially processed sponge. **$3.25**



**SOLDERING HANDLES** . . . . . **$3.07**
**#6902 Two wire handle.** U.L. listed.
**#6903 Three wire handle,** with molded NEMA plug.



**#6950** **#6951** **#6952** **#6953**

**SOLDERING NIBS**

**#6950 Pencil Nib.** Cad. copper, .61" L. stepped to .080" D. x .015" P. **$.38**

**#6960** Iron clad, gold plated. Same as #6950. **$.64**

**#6951 Screwdriver Nib.** Cad. copper, .68" L. stepped to .080" D. x .055" P. **$.38**

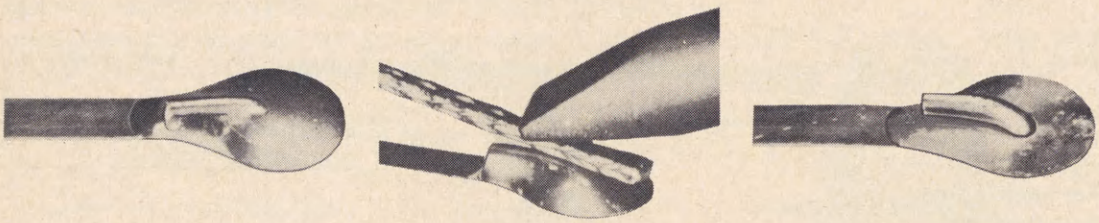
**#6961** Iron clad, gold plated. Same as #6951. **$.64**

**#6962** Iron clad, gold plated. Same as #6952. **$.64**

**#6952 Spade Nib.** Cad. copper, .61" L. stepped to .080" D. with 45° spade tip. **$.38**

**#6953 Precision Point Nib.** Cad. copper, .61" L. stepped to .080" D. x .005" P. **$.69**

**#6963** Iron clad, gold plated. Same as #6953 except point is .010". **$1.25**



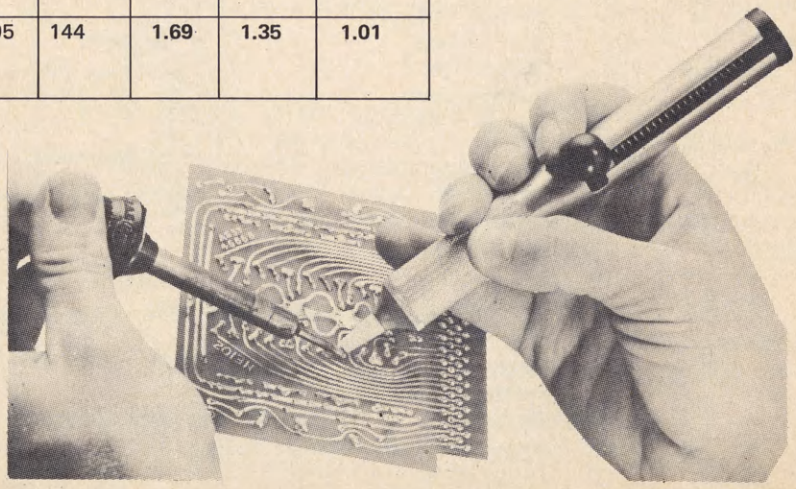
**SODER-WICK**

With Soder-Wick and a regular soldering iron, the desoldered joint is solder-free. Residue, if any, is pure non-corrosive, electrically non-conductive rosin. Soder-Wick is fast. When solder becomes molten, it is immediately drawn into the Soder-Wick wicking material. Desoldering usually requires only one second. Soder-Wick eliminates heat build up.

| CONNECTIONS | | SODER-WICK | | | | NET PRICE (Per Spool) | | |
|---|---|---|---|---|---|---|---|---|
| Type of Circuit | Pad Size | No. & Color Code | No. | Width | Strands | 1 to 24 | 29 to 99 | 100 & Up |
| Micro & integrated Circuits | .060 & smaller | #1 (White Label) | 40-1-5 | .025 | 32 | $1.49 | $1.19 | $ .89 |
| Miniature Printed Circuit | .060 to .125 | #2 (Yellow Label) | 40-2-5 | .050 | 64 | 1.49 | 1.19 | .89 |
| Standard Printed Circuit | .125 to .190 | #3 (Green Label) | 40-3-5 | .075 | 96 | 1.49 | 1.19 | .89 |
| Commercial p.c.b. and connectors, such as telephone connectors | .190 & larger | #4 (Blue Label) | 40-4-5 | .095 | 144 | 1.69 | 1.35 | 1.01 |

**T2 VACUUM DESOLDER PUMP**

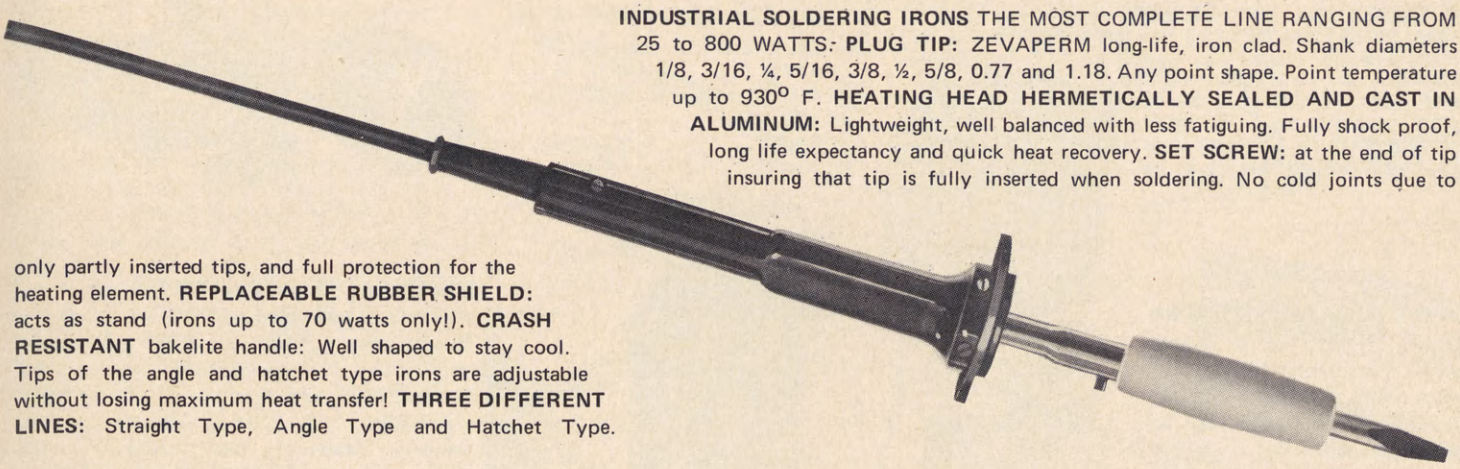
The main body of this tool is constructed of sturdy, light-weight aluminum for long life. The finish is an attractive gold color. It has a solid piston for increased desoldering ability. 6 15/16" O.A.L. This tool may be loaded and unloaded with one hand. No more wasted motion as with other brands. There is no need to have this tool in any special position in order to load it. Care and maintenance are reduced to a minimum, because of the simple construction (ONLY 3 SEPARATE PIECES). The construction is such that the tip is cleared of many solidified solder each time the pump is loaded for use. The tip is replaceable. It is made of low resistance Teflon for long life. . . . . **$12.50**





ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

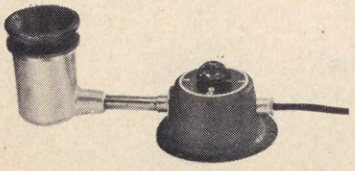
# ZEVA SOLDERING IRON



**INDUSTRIAL SOLDERING IRONS** THE MOST COMPLETE LINE RANGING FROM 25 to 800 WATTS. **PLUG TIP:** ZEVAPERM long-life, iron clad. Shank diameters 1/8, 3/16, ¼, 5/16, 3/8, ½, 5/8, 0.77 and 1.18. Any point shape. Point temperature up to 930° F. **HEATING HEAD HERMETICALLY SEALED AND CAST IN ALUMINUM:** Lightweight, well balanced with less fatiguing. Fully shock proof, long life expectancy and quick heat recovery. **SET SCREW:** at the end of tip insuring that tip is fully inserted when soldering. No cold joints due to only partly inserted tips, and full protection for the heating element. **REPLACEABLE RUBBER SHIELD:** acts as stand (irons up to 70 watts only!). **CRASH RESISTANT** bakelite handle: Well shaped to stay cool. Tips of the angle and hatchet type irons are adjustable without losing maximum heat transfer! **THREE DIFFERENT LINES:** Straight Type, Angle Type and Hatchet Type.

THERE ARE A WIDE SELECTION OF TIPS AVAILABLE. WRITE OR CALL FOR MORE INFORMATION.

| STRAIGHT (PENCIL) IRONS | MODEL NO. | WATTS | MAX. TEMP. °F | MAX. TEMP. °C | TIP DIA. ins. | WEIGHT W/O CORD ozs. | WEIGHT COMPL. ozs. | DESCRIPTION | PRICES Iron | PRICES Tips |
|---|---|---|---|---|---|---|---|---|---|---|
| | S4 | 25<br>30 | 610<br>705 | 320<br>375 | 1/8 | 3.1 | 6.1 | For miniature and fine precision work. For instrument repair work. | $6.25 | $ .25 |
| | S5 | 35 | 790 | 420 | 3/16 | 3.1 | 6.1 | For light to medium production line soldering in electronics and related industries. For printed circuit board soldering and "touch-up" work. | 6.40 | .30 |
| | S6 | 50<br>60 | 800<br>840 | 430<br>450 | 1/4 | 3.7<br>4.5 | 6.7<br>7.5 | | 7.00 | .40 |
| | S7 | 60<br>70 | 750<br>840 | 400<br>450 | 5/16 | 4.9<br>5.1 | 7.9<br>8.1 | | 8.30 | .65 |
| **HATCHET IRONS**<br>adj. tip guarantees constant pt. temp. | H6 | 50<br>60<br>70 | 705<br>750<br>840 | 375<br>400<br>450 | 1/4 | 7.1 | 11.5 | Same as P5, P6 and P7.<br>GENERAL NOTE ON S, P AND H TYPE IRONS:<br>Choose the higher wattage within one model for high repetitive production work, use the lower wattage for intermittent operations, | 9.10 | .40 |
| | H7 | 75<br>85 | 750<br>890 | 400<br>475 | 5/16 | 8.1 | 12.5 | | 9.50 | .65 |
| **ANGLE IRONS**<br>adj. tip guarantees constant pt. temp. | P4 | 25<br>30 | 590<br>660 | 310<br>350 | 1/8 | 3.3 | 6.3 | Same as S4.<br>45° angle shape makes it ideal for work on miniature circuitry. | 6.25 | .25 |
| | P5 | 35 | 790 | 420 | 3/16 | 3.6 | 6.6 | Same as S5, S6 and S7. | 6.40 | .30 |
| | P6 | 50<br>60<br>70 | 735<br>790<br>930 | 390<br>420<br>500 | 1/4 | 4.4<br>4.7 | 7.4<br>7.7 | | 8.30 | .40 |
| | P7 | 75<br>85 | 790<br>840 | 420<br>450 | 5/16 | 9.1 | 13.5 | | 8.30 | .65 |

| ZEVA SOLDER POTS<br>A complete line from 60 to 800 watts | MODEL NO. | WATTS | MAX. TEMP. °F | MAX. TEMP. °C | Capacity 50/50 Solder C.I. | Capacity 50/50 Solder lbs. | Capacity 50/50 Solder Dia. ins. | Dep. ins. | Wt. oz. | DESCRIPTION | PRICES |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ZWKSR | 60-85 Adjustable | 790 | 420 | .43 | .14 | .47 | 1.97 | 22 | For dip tinning thin wires, stranded wires and small piece parts. | $16.65 |
| | ZWMSR | 120 to 160 adjustable | 790 | 420 | 1.45 | .47 | .78 | 2.16 | 27 | For dip tinning thin and stranded wires. Most suitable high repetitive production line work. For the tinning of solderable enamelled copper wires. | 19.50 |

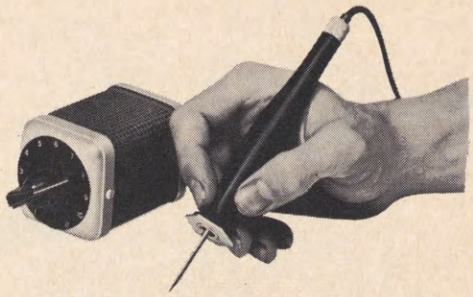
# AMERICAN BEAUTY SOLDERING IRONS

**T-6 VARIABLE-HEAT, MICRO-SOLDERING IRON**—New! Features voltage-reducing, line insulating transformer with 11-point tap switch. Dial the desired tip temperature from heat-setting chart mounted on transformer. Lightweight, superflexible cord. Nylon, comfort-contoured handle weighs only ¾ oz. Tip of special ferro-alloy can be re-shaped with file. Quick tip heat changes effected in 50° steps (approx.) from 310°F to 850°F. Replaceable tip with long-life 12 watt heating element.

LENGTH: O.A.L. 6⅜"—WEIGHT: ¾ oz.

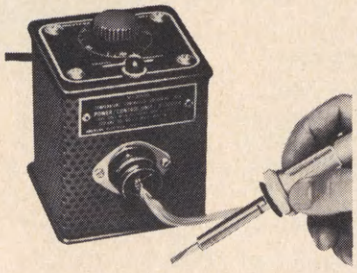
1 or 2 unit price ..... **$22.75** ea.
3 to 6 units ..... **21.50** ea.
Over 6 units ..... **19.25** ea.

TIPS FOR ABOVE
1 to 3 units ..... **$5.00** ea.
Over 3 units ..... **4.25** ea.



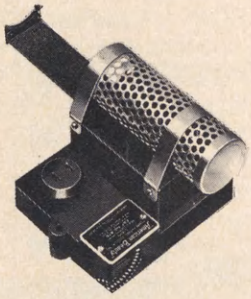
**SAFETY SOLDERING IRON STAND** Holds iron in aerated basket. Accommodates all miniature irons. Made of cadmium plated, heavy gauge steel. May be permanently mounted on bench. 6" x 2" x 4".

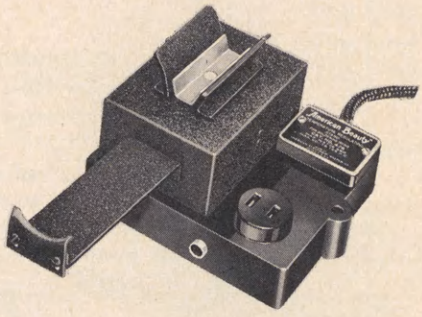
**575** Safety Soldering Iron Stand ..... **$3.00**



**V-3000 SOLDERING SYSTEM** Now a 40-watt, temperature-controlled soldering iron. Wide operating range, 350°F to 750°F. Responds continuously to changes in load demand. Uses standard 3/16" plug-type tips. Tip temperature will not vary more than 5°. Low-voltage heat element. Clean-room type handle. Non-roll design. Heat-deflecting baffle, 3-wire cord. Compact power unit with pilot light, rubber feet.

**V-3000** ..... **$49.00**





**TEMPERATURE REGULATING STANDS** Maintain soldering irons at preset temperatures during periods of idle and intermittent use. Minimizes warm-up time, prevents iron from overheating, saves current. Temperature set by adjusting screw under base. Pilot light. Handle bracket adjusts to length of iron.

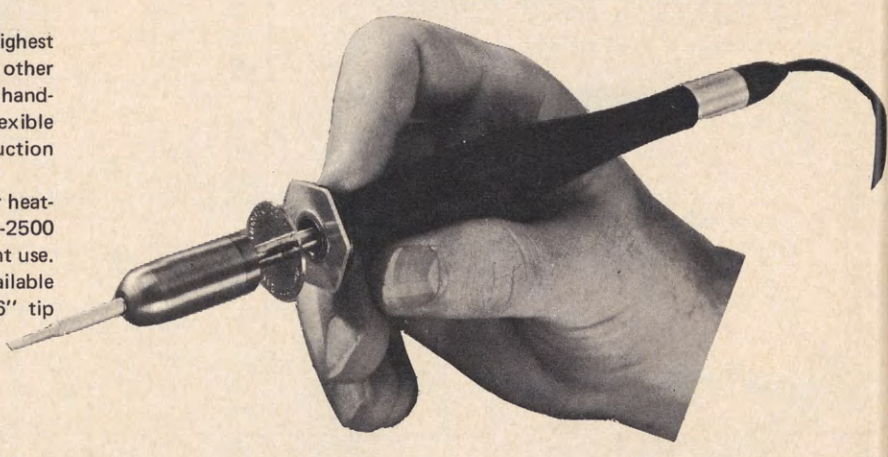
Construction: Copper alloy cradle. Case and handle support bracket of black crackle-finish steel. Base of high impact plastic with steel baseplate. Safety guard is perforated heavy-gauge steel, one end closed. Maximum wattage 86 watts.

**476** Stand only 7¾" x 5 5/8" x 3 5/8". ..... **$10.35**
**476-SG** Stand with safety guard 9" x 5 5/8" x 4 3/8" ..... **12.00**

**B-SERIES MINIATURE IRONS** Specially designed for highest precision work in laboratories, on printed circuitry or other high-density electronics soldering. Weight two oz. Three-inch hand-to-work span. Contoured, cool, non-slip handle with super-flexible cord and anti-roll baffle. 7" O.A.L. Three-piece construction for 10 second takedown.

Patented, "floating" element maintains tip temperature under heat-sink conditions. (Max. tip temperatures; B-2000 700+°F; B-2500 850+°F) Longlife heating element for intermittent or constant use. Tapered tip-seating for quick screw-in tip replacement. Available with 22½ watts, 1/8" tip (No. B-2000); or 30 watts, 3/16" tip (No. B-2500). Comes with three assorted tips. **Each $10.25**

**Ask for information on a variety of other tips.**



Little Dandy Irons are offered in three basic sizes, from 20 to 60 watts, and tip diameters of 1/8", 3/16" and 1/4".

**"Standard" wattage for #3108 iron is 20-W; for #3110 iron is 25-W; for #3112 iron is 40-W. All come "standard" equipped with 2-wire neoprene cord set and with nickel-plated, screwdriver-shape tips. (No. 297 for 3108; No. 274 for 3110; No. 289 for 3112). Any variation from these "standards" must be stated on orders. Available in higher and lower wattages.**

**LITTLE DANDY MINIATURE IRONS** Little Dandy is an economy priced miniature iron that stands up to rugged production line conditions. It is different from any other miniature on the market. Different in its combination of performance, handling case and length of life. 3-wire cord available on all models

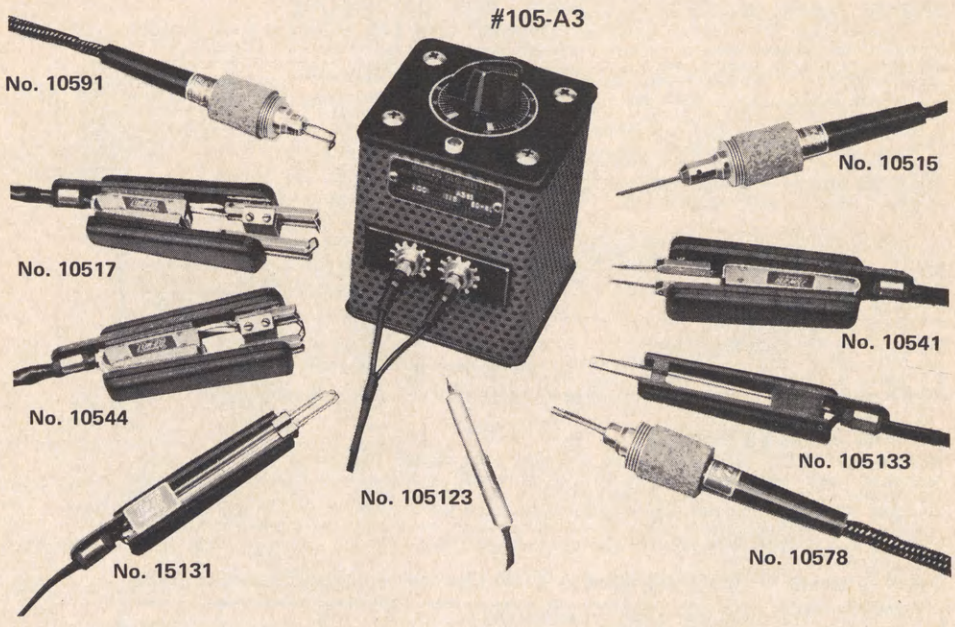
| CATALOG NUMBER | WATTAGES (Specify) | LENGTH | NET WT. | TIP DIA. | TIP LENGTH | Price |
|---|---|---|---|---|---|---|
| 3108 | 20/25/30 | 6½" | 3 oz. | 1/8" | 2¼" | $4.70 |
| 3110 | 25/30/35 | 6½" | 3 oz. | 3/16" | 2¼" | 4.70 |
| 3112 | 40/50/60 | 7½" | 4¼ oz. | 1/4" | 2¼" | 6.25 |

# RESISTANCE SOLDERING IRONS - WASSCO

**INFINITELY VARIABLE CONTROL FOR MINIATURE TO MEDIUM WIRE STRIPPING AND RESISTANCE TYPE SOLDERING**

**No. 105-A3** Power Control is the single, economical heat control for most thermal wire stripping and resistance type soldering. Infinitely variable and stepless regulation of power. Dial readings (0 to 100) serves as guide for repetition of jobs. Wattage: 0 to 100. Voltage: 0 to 3. With pilot light and fuse. Size: 4" x 5" x 5". Ventilated steel construction with rubber non-skid feet.

1-3. . . . . $42.00
4 +. . . . . 39.00




**Replacement Blades for the 10541**
**10542** Pkg. of 2 blades **1-3 $3.00 4 + $2.75**

**Replacement Elements for the 10544**
**10545** Two Elements **1-3 $.60 4 + $.55**

**WIRE STRIPPER HANDPIECES**

**No. 105131** Micro-Tweezer Wire Stripper. Strips 24 gauge and finer wires. Ultra lightweight, balanced. Sponge neoprene grips. Replaceable elements. (Footswitch recommended) 50% duty cycle at full power. Length, 6½", weight 1½" oz. **1-3**. . . . . $15.90
4 +. . . . . 14.25

**No. 10544** Tweezer Wire Stripper. Strips 18 gauge and finer wires. Adjustable stop for length of strip. Replaceable elements. Sponge neoprene grips. 50% duty cycle at full power. (Footswitch recommended) Length 4½", weight 4 oz. **1-3**. . . . . $18.25
4 +. . . . . 17.00

**No. 10517** Tweezer Wire Stripper/Extended Jaws. Same as No. 10544 above except extended jaws for better "reach"; also allows 100% power, no switching, on some operations. (Footswitch recommended) **1-3**. . . . . $18.25
4 +. . . . . 17.00

**No. 10591** V-Notch Wire Stripper, Single loop handpiece for stripping wires up to 12-gauge. Also for use as heated notching tool of "hot knife" on heavy insulation; best for no-nick stripping on heavy conductors. Cork on nylon handle. Replaceable element. Length 5", weight 3 oz. **1-3**. . . . . $15.00
4 +. . . . . 14.00

**SOLDERING HANDPIECES**

**No. 10515** Single-Carbon Handpiece. High heat and single electrode for soldering connections such as pretinned hollow pins, etc. (Use with ground lead and footswitch recommended) Electrode, 3/32". Handpiece length 6", weight 3 oz. **1-3**. . . . . $11.50
4 +. . . . . 10.75

**No. 10541** Tweezer Soldering Handpiece. Sponge neoprene grips. Sturdy handpiece for miniature soldering. Electrodes, .078", replaceable. (Footswitch recommended) Handpiece length 5". Weight 4 oz. **1-3** . . . . . $18.25
4 +. . . . . 17.00

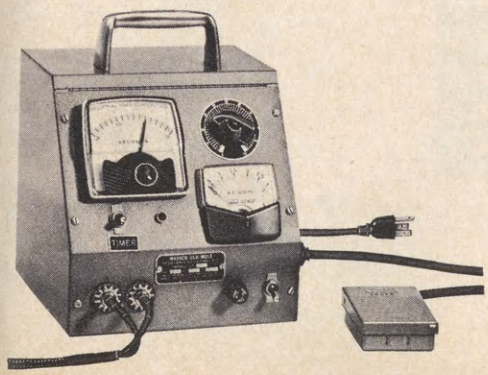
**No. 105133** Micro Soldering Tweezer, Ultra lightweight, but production quality, handpiece for micro-miniature soldering. Super flexible cord. Electrodes, .040", replaceable. Handpiece length 6½", weight 1½ oz. **1-3** . . . . $15.90
4 +. . . . . 14.25

**No. 10578** Dual Metal Soldering Handpiece. Lightweight handpiece of repetitive type soldering. Spring electrodes, .078", may be bent or formed; replaceable. Handle: cork on nylon length 6". **1-3** . . . . . $16.25
4 +. . . . . 15.00

**No. 105123** Micro Soldering Probe for junctions requiring solder pads as small as 1/64" or solder balls as small as .001". Electrode, .012", replaceable. Must be used with footswitch and low power (Dial 70 or less on Power Unit No. 105-A3). Turned nylon handle. Super flexible cord. Length 3¼". **1-3**. . . . . $15.00
4 +. . . . . 14.00

**No. 10512** Ground lead (for use with No. 10515 Handpiece only) **1-3**. . . . . $6.00
4 +. . . . . 5.50

**No. 10519** Footswitch **1-3** . . . . . $10.50
4 +. . . . . 9.25



**TIME AND TEMPERATURE CONTROLLED SOLDERING SET**

**No. 105-A5** Complete temperature and time control for resistance soldering. Reduces "human element". Adaptable for use in automated and semi-automated soldering systems. Can be used with any of the above, with other models available. Incorporated dial wattage (zero-100W) direct voltage-read-out meter, adjustable electro-mechanical timer with in-out switch, pilot light, on-off switch, fuse, output jacks. Timer is nonrepeating, footswitch fired. Timer is adjustable in 1/4 seconds from 1/4 to 15 seconds; guaranteed 100% repetition. Timer may be locked out for pulse control by footswitch. Power cord is 3-wire, 6' long with NEMA plug. Size: 8" high x 8 1/16" wide x 8" deep. Shipping weight 11 lbs. **1-3** . . . . . $130.00
4 +. . . . . 120.00

# VANGUARD DESOLDERING IRONS

## UNILINE MARK VII INTERCHANGEABLE HEAT CARTRIDGES

A completely new design. All Uniline heat cartridges (length 2.8", barrel dia. 0.410", net wt. 0.8 oz.) have stainless steel bodies and tellurium copper heat collectors. The threaded end of the collector is engineered to deliver maximum heat to the tip. These heat cartridges feature a coaxial, stainless steel tube (0.090 I.D.) that provides a large, non-clogging passageway from end to end. Every model is grounded for safety and individually tested to insure the ultimate in customer satisfaction. For your convenience, our entire selection of 115 volt, AC-DC cartridges fit all Uniline Mark VII handles and are styled free of dirt and dust-collecting fins or serrations. Quickly interchangeable, these units connect at the cold end and are changed easily by hand. All Uniline heat cartridges come complete with tip collar.
See prices below. (MIL-STD-T-52010-A)

**#7120-20 WATT #7130-30 WATT #7140-40 WATT #7150-50 WATT**

| | UNILINE MARK VII HEAT CARTRIDGES | | | |
|---|---|---|---|---|
| PART NO. | DESCRIPTION | 1-9 ea. | 10-49 ea. | 50-UP ea. |
| 7120 | 20 WATT | 6.10 | 5.19 | 4.69 |
| 7130 | 30 WATT | 7.95 | 6.76 | 5.96 |
| 7140 | 40 WATT | 8.95 | 7.61 | 6.71 |
| 7150 | 50 WATT | 9.95 | 8.46 | 7.46 |

## UNILINE MARK VII HANDLES

High impact ZYTEL polyamide handles are cool, light weight (wt. minus cord less than 1 ounce) and well balanced (measuring 4.5" in length, .90" at grip). These RUGGEDIZED handles incorporate an 18 gauge, 6 foot, 3 conductor cord set. Neutral beige in color, these cords are equipped with a specially designed strain reliever and 3 prong grounded NEMA plug. Inside the handles are shock mounted, non-corrosive male terminals for ease of heat cartridge alignment and interchangeability. All Uniline handles come complete with nut cap. See price above. (MIL-STD-P-17091)

**#7010 Turquoise — #7020 Soft Beige — #7030 Charcoal — #7040 Clean-Room White**

| | UNILINE MARK VII HANDLES | | | |
|---|---|---|---|---|
| PART NO. | DESCRIPTION | 1-9 ea. | 10-49 ea. | 50-UP ea. |
| 7010 | TURQUOISE | 6.50 | 5.53 | 4.99 |
| 7020 | BEIGE | 6.50 | 5.53 | 4.99 |
| 7030 | CHARCOAL | 6.50 | 5.53 | 4.99 |
| 7040 | WHITE | 6.50 | 5.53 | 4.99 |

## UNILINE MARK VII INTERCHANGEABLE TIPS AND ORDERING CODE

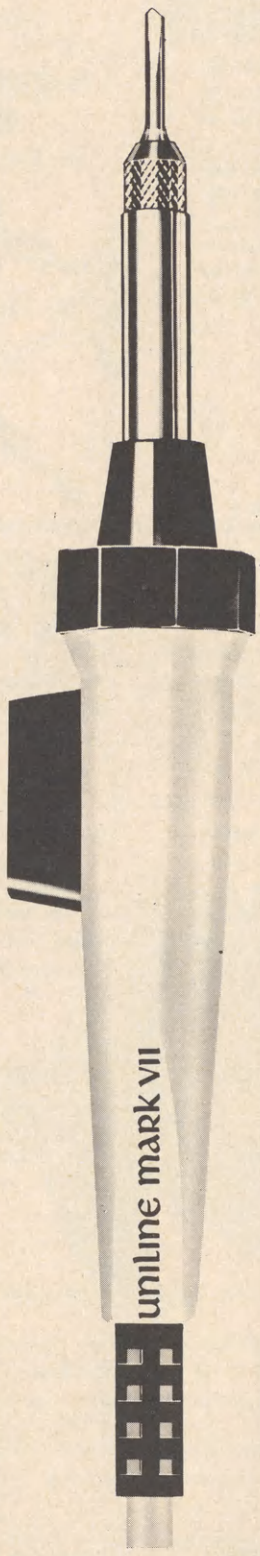
**TIP COMPOSITION**

* Iron clad 24kt gold plated

✶ copper nickel plated

| ULTRA FINE | GENERAL PURPOSE | HEAVY DUTY | OFFSET | CUSTOM | | BODY STYLES |
|---|---|---|---|---|---|---|
| (1/16") A | (⅛") B | (3/16") C | VARIES D | (⅛") E | | BODY DIAMETER IDENT. LETTER |
| POINTED 1 | SPADE 2 | CHISEL 3 | PYRAMID 4 | FILE TO SUIT 5 | COMBI—NATION 6 | POINT STYLE IDENT. NUMBER |

| PART NO. | STYLE | | DESCRIPTION | TIP COMP. | PRICE EACH | | |
|---|---|---|---|---|---|---|---|
| | BODY | PT. | | | 1-9 ea. | 10-49 ea. | 50-UP ea. |
| 7211 | A | 1 | .900 L. X .016 I. D. | * | 3.50 | 2.98 | 2.63 |
| 7221 | A | 2 | .900 L. X .023 I. D. | * | 2.75 | 2.34 | 2.06 |
| 7231 | A | 3 | .900 L. X .023 I. D. | * | 2.80 | 2.38 | 2.10 |
| 7241 | A | 4 | .900 L. X .023 I. D. | * | 2.90 | 2.47 | 2.18 |
| 7251 | A | 6 | .900 L. X .023 I. D. | * | 2.95 | 2.51 | 2.21 |
| 7291 | A | FLAT FACE | .900 L. X .023 I. D. | * | 2.50 | 2.13 | 1.88 |
| 7312 | B | 1 | .900 L. X .035 I. D. | * | 1.50 | 1.28 | 1.13 |
| 7322 | B | 2 | .900 L. X .035 I. D. | * | 1.25 | 1.06 | .94 |
| 7332 | B | 3 | .900 L. X .035 I. D. | * | 1.30 | 1.11 | .98 |
| 7342 | B | 4 | .900 L. X .035 I. D. | * | 1.35 | 1.15 | 1.01 |
| 7352 | B | 6 | .900 L. X .035 I. D. | * | 1.40 | 1.19 | 1.05 |
| 7462 | B | 6 | 1.500 L. X .043 I. D. | * | 1.50 | 1.28 | 1.13 |
| 7413 | C | 1 | .900 L. X .043 I. D. | * | 1.95 | 1.66 | 1.46 |
| 7423 | C | 2 | .900 L. X .043 I. D. | * | 1.70 | 1.45 | 1.28 |
| 7433 | C | 3 | .900 L. X .043 I. D. | * | 1.75 | 1.49 | 1.31 |
| 7443 | C | 4 | .900 L. X .043 I. D. | * | 1.80 | 1.53 | 1.35 |
| 7453 | C | 6 | .900 L. X .043 I. D. | * | 1.85 | 1.57 | 1.39 |
| 7563 | C | 6 | 1.500 L. X .055 I. D. | * | 1.95 | 1.66 | 1.46 |
| 7572 | D | 3 | 1.500 L. X .055 I. D. | * | 2.35 | 2.00 | 1.76 |
| 7582 | D | 4 | 1.500 L. X .055 I. D. | * | 2.50 | 2.13 | 1.88 |
| 7673 | D | 3 | 1.500 L. X .062 I. D. | * | 2.75 | 2.34 | 2.06 |
| 7294 | E | 5 | .900 L. X .023 I. D. | ✶ | .35 | .30 | .27 |
| 7394 | E | 5 | .900 L. X .035 I. D. | ✶ | .35 | .30 | .27 |
| 7494 | E | 5 | .900 L. X .043 I. D. | ✶ | .35 | .30 | .27 |
| 7594 | E | 5 | .900 L. X .055 I. D. | ✶ | .65 | .55 | .50 |
| 7694 | E | 5 | .900 L. X .062 I. D. | ✶ | .65 | .55 | .50 |
| 7794 | E | 5 | .900 L. X .075 I. D. | ✶ | .65 | .55 | .50 |




## TIPS

Uniline tips come in a variety of sizes and styles: ULTRAFINE 1/16" shank dia. — specifically designed for all microminiaturization, GENERAL-PURPOSE ⅛" shank dia. — used for all general soldering and desoldering, HEAVY-DUTY 3/16" shank dia. — designed to deliver and sustain a very high rate of heat transmission, OFF-SET shank dia. varies — designed for ease and efficiency in limited access areas, CUSTOM ⅛" shank dia. — a combination of economy and versatility that the user may file or shape to suit his needs. **NOTE: ALL TIPS ARE USED FOR SOLDERING AND DESOLDERING.**

## CONTROL BULB

The heart of this advanced instrument is the control bulb, made of silicone rubber which is highly resilient to high temperature, dry rot and other forms of deterioration. The depression of this bulb controls the desoldering function of the tool. (MIL-STD-ZZ-R-7658) **#7840**

| PART | 1-9 ea. | 10-49 ea. | 50-UP ea |
|---|---|---|---|
| 7840 | 1.95 | 1.66 | 1.46 |

## TIP COLLAR

The tip collar simply slips over the tip (accommodates all tips) and threads "finger tight" thus eliminating the need for assembly tools. (MIL-STD-QQ-C-320) **#7820**

| PART | 1-9 ea. | 10-49 ea. | 50-UP ea |
|---|---|---|---|
| 7820 | .35 | .30 | .27 |

## NUT CAP

The nut cap is octagon shaped to prevent rolling and is used to position the heat cartridge to the handle. (MIL-STD-M14F) **#7830**

| PART | 1-9 ea. | 10-49 ea. | 50-UP ea |
|---|---|---|---|
| 7830 | .75 | .64 | .56 |

## ANTISEIZE

Regular use of this high viscosity high temperature non-petroleum lubricant eliminates thread seizure, oxidation and corrosion. (MIL-STD-M-7866A-ASG) **#7850** ¼-oz. Tube

| PART | 1-9 ea. | 10-49 ea. | 50-UP ea |
|---|---|---|---|
| 7850 | .55 | .45 | .42 |

## BORE CLEANERS

The bore cleaners are designed to remove any waste material that may eventually restrict the orifices in the tool such as flux, oxidation, etc. **#7861-7868**

| PART | DESCRIPTION | 1-9 | 10-49 | 50UP |
|---|---|---|---|---|
| 7861 | .016 Dia. | 1.00 | .85 | .75 |
| 7862 | .023 Dia. | 1.00 | .85 | .75 |
| 7863 | .035 Dia. | .95 | .81 | .71 |
| 7864 | .043 Dia. | .90 | .77 | .68 |
| 7865 | .055 Dia. | .80 | .68 | .60 |
| 7866 | .062 Dia. | .80 | .68 | .60 |
| 7868 | For Cartridges | .85 | .72 | .64 |

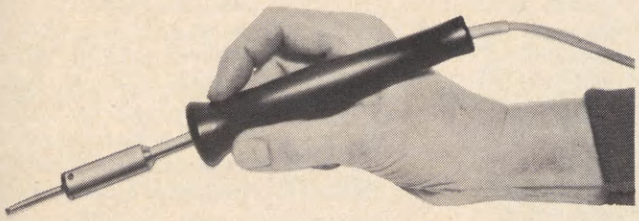
## UNILINE HOBBYIST (KIT)

**A complete kit: the Uniline Hobbyist contains (1) one handle, (1) one heat cartridge and (1) one tip starting as low as $9.95. #7005**

| PART NO. | 1-9 ea. | 10-49 ea. | 50-UP ea |
|---|---|---|---|
| 7005 | 9.95 | 8.96 | 7.46 |

# ESICO SOLDERING IRONS AND SOLDER POTS

**Quantity Discounts Available**



**INDUSTRIAL SOLDERING IRONS & TIPS**

Production line usage proves quality of ESICO's Miniature Irons. Selective tip temperature assured by a wide range of available wattages. All have fine balanced, cool, comfortable handle with stainless steel construction and long life, mica-wound element. All parts, including the famous ESICO mica-wound element, are readily removed and are replaceable. Flexible two-conductor cords, six feet long, are standard. Three-conductor cords can be supplied where specified.

ESICO Vitacote Iron-Clad Tips with core of commercially pure copper and iron-plated to precision controlled standards. Tips are pretinned.

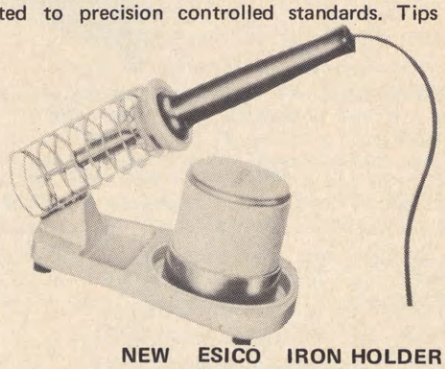
| MINIATURE INDUSTRIAL IRONS | MINIATURE OFFSET IRONS | WATTAGE | PRICE |
|---|---|---|---|
| **SERIES 3200 1/8" TIPS** | | | |
| 3220 | 3220-H | 20 | $8.20 |
| 3225 | 3225-H | 25 | 8.20 |
| 3230 | 3230-H | 30 | 8.20 |
| 3235 | 3235-H | 35 | 8.20 |
| 3240 | 3240-H | 40 | 8.20 |
| 3245 | 3245-H | 45 | 8.20 |
| 3250 | 3250-H | 50 | 8.30 |
| **SERIES 3300 3/16" TIPS** | | | |
| 3325 | 3325-H | 25 | $8.30 |
| 3330 | 3330-H | 30 | 8.30 |
| 3335 | 3335-H | 35 | 8.30 |
| 3340 | 3340-H | 40 | 8.30 |
| 3345 | 3345-H | 45 | 8.30 |
| 3350 | 3350-H | 50 | 8.50 |

**NEW Model ES-6 ESICONTROL Wattage Controller for Soldering Irons and Solder Pots.. . . $16.50**

| CAT. NO. | STYLE OF POINT | POINT DIMENSIONS | PRICE |
|---|---|---|---|
| **1/8 DIA.** | | | |
| 210-M | Chisel, Long | 1/8 x 1/32 | $1.50 |
| 211-M | Chisel, Short | 1/8 x 1/32 | 1.50 |
| 220-M | Semi-Chisel, Narrow | 1/16 x 1/32 | 1.50 |
| 230-M | Pyramid | 1/32 x 1/32 | 1.50 |
| 240-M | Conical, Sharp | 1/32 Diam. | 1.50 |
| 241-M | Conical, Blunt | 1/16 Diam. | 1.50 |
| 250-M | Bevel | 1/8 | 1.50 |
| 210-1-M | Chisel, Turned to 1/16 | 1/16 x 1/64 | 1.60 |

| CAT. NO. | STYLE OF POINT | POINT DIMENSIONS | PRICE |
|---|---|---|---|
| **3/16 DIA.** | | | |
| 310-M | Chisel, Long | 3/16 x 1/32 | $1.70 |
| 311-M | Chisel, Short | 3/16 x 1/32 | 1.70 |
| 320-M | Semi-Chisel, Narrow | 3/32 x 1/32 | 1.70 |
| 321-M | Semi-Chisel, Wide | 1/8 x 1/32 | 1.70 |
| 330-M | Pyramid | 1/32 x 1/32 | 1.70 |
| 340-M | Conical, Sharp | 1/32 Diam. | 1.70 |
| 341-M | Conical, Blunt | 1/16 Diam. | 1.70 |
| 310-1-M | Chisel, Turned to 1/16 | 1/16 x 1/32 | 1.80 |
| 310-2-M | Chisel, Turner to 1/8 | 1/8 x 1/32 | 1.80 |
| 321-2-M | Semi-Chisel, Turned to 1/8 | 3/32 x 1/32 | 1.80 |
| 330-2-M | Pyramid, Turned to 1/8 | 1/32 x 1/32 | 1.80 |
| 340-2-M | Conical, Turned to 1/8 | 1/32 Diam. | 1.80 |

Available in various lengths.

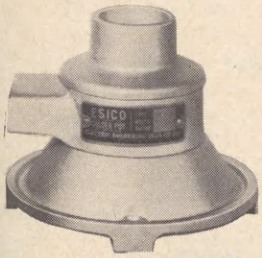


**NEW ESICO IRON HOLDER TIP CLEANER Model HC-4 combination Iron Holder and Tip Cleaner $15.00**

Protective collar on Iron Holder prevents tip damage when iron is inserted. Accepts ESICO Miniature Industrial Irons and most other miniature irons.

**HC-5** Dual Holder **$24.00**

3 styles available in Series 12, 36, 37: (1) Standard Models, (2) Model 'C' Pots have a Thermo-cape added to standard pots to add approximately 150°F to maximum pot temperature without increasing wattage, and (3) Model 'T' Pots have adjustable thermostats for selecting the best operating temperature.

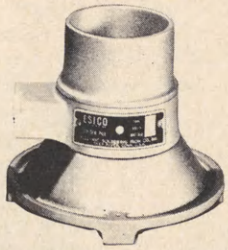


#12 $10.20

#12C $12.90

#12T $22.70

**No. 12 – 200 watts.** Ideal for individual dipping of small parts. 1 9/16" inside diameter, 1½" inside depth, ¾ lb. capacity. Maximum temperature °F: 12 – 750°, 12C – 900°, 12T – 650°.

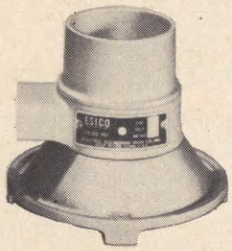


#36 $11.40

#36C $14.80

#36T $23.80

**No. 36 – 250 watts.** For dip soldering of bundles of lead wires, etc. 2½" inside diameter, 1¾" inside depth, 2¼ lb. capacity. Maximum temperature °F: 36 – 750°, 36C – 900°, 36T – 625°.

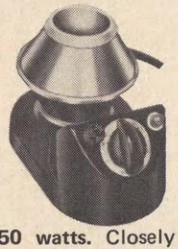


#37 $15.60

#37C $20.10

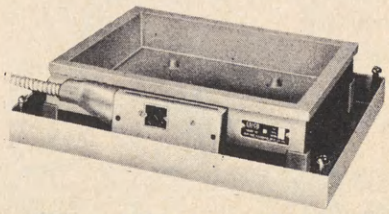
#37T $28.10

**No. 37 – 60 watts.** 3½" inside diameter, 1¾" inside depth, 5 lb. capacity. Maximum temperature °F: 37 – 800°, 37C – 1000°, 37T – 650°.



**No. 20 – 250 watts.** Closely controlled temperature from 500° to 1050°F with automatic correction for voltage fluctuations. 2" inside diameter, 1½" inside depth, 1¼ lb. capacity. Maximum temperature 1200°F. **$38.30**

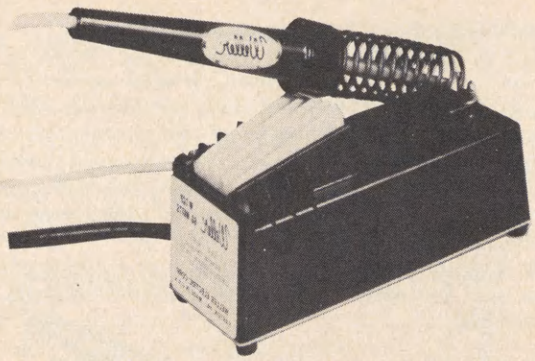
**No. 80T – 1200 watts.** For dipping printed circuit boards. Thermostat control. Has sand tray. 6" x 12" inside diameter, 1 7/8" inside depth, 45 lb. capacity. Maximum temperature 650°. **$90.00**



**No. 85T – 2400 watts.** 80 lbs. solder capacity. For large pc boards. Thermostat control. 10" x 12" inside diameter, 1" inside diameter. 650° maximum temperature °F. **$175.00**

# WELLER IRONS AND PULSE DOT UNITS

**Quantity Discounts Available**



**WELLER SOLDERING PENCIL**—Temperature Controlled "Low Voltage"—Specifically created to meet changing "State of the Art" and Gov't Soldering Spec's: Temperature controlled at the tip. A choice of specific, different tip temperatures. Extremely small and lightweight. Packed with plenty of reserve power. High efficiency and recovery. Suitable for miniature and general soldering. Low voltage (24v.) for component protection. Isolated for elimination of leakage current. Excellent operator control and maneuverability. Cool handle of impact resistant plastic. Premium plated interchangeable tips. 60W, 120V, 50/60 cycles (220V, 50/60 cycles available upon request at same price.)

**W-TCP** (complete iron, 3/16" 700° tip, power unit) ..... **$19.50**

**PT-A5**—1/16" Screwdriver tip @ 500°F ..... each **.75**

**PT-A6**—1/16" Screwdriver tip @ 600°F ..... each **.75**

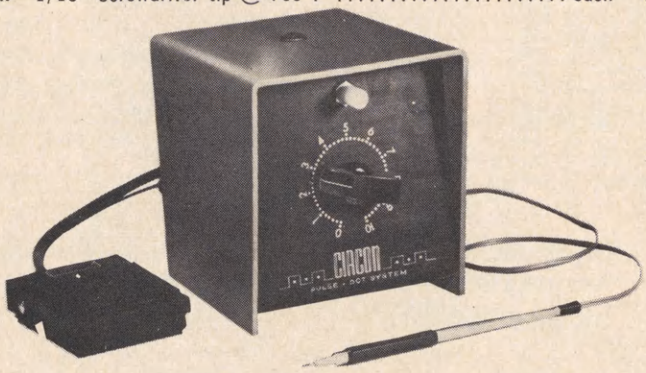
**PT-A7**—1/16" Screwdriver tip @ 700°F ..... each **.75**

**WELLER SOLDERING PENCIL**—
Continuously variable temperature controlled at the tip from 200° F to 450° F. Dial the temperature needed for the specific job. Extremely small and lightweight. Suitable for low temperature miniature soldering. Operates at 24V. from an isolated secondary winding for complete operator and equipment safety. Cool handle of impact resistant plastic. Premium plated interchangeable tips. Light weight flexible cord protected its entire length with coiled stainless steel wire. Prevents cord breakage and burning and affords complete maneuverability and control. 15 Watts, 120 Volts, 50/60 cycles (220V, 50/60 cycles available upon request at same price).

**W-TCP-2** (complete iron, 1/16" tip, power unit) ..... **$37.50**

**ST-A** (1/32" conical flat tip) ..... **.75**

**ST-B** (1/16" screwdriver tip) ..... **.75**




**THE CIRCON PULSE DOT SYSTEM** is a new way to microsolder with the smallest tool on the market. PDS eliminates variables by offering the following equipment: THE PULSE CONTROLLER which can regulate temperature from 200 to 1800°F by setting the dial. The duration of the heat pulse is controlled by the foot switch and visually indicated by the red light. THE SOLDER LOOP is a microminiature heating element of non-corrosive alloy which does not require tinning or dressing. The lightweight, pencil size handle is balanced for delicate manipulation under the microscope.

**PULSE-DOT SYSTEM COMPONENTS**

**PDS-PC** PULSE CONTROLLER MICRO MODEL. . . . . **$126.45**

**PDS-PC-1** PULSE CONTROLLER PRINTED CIRCUIT . . . . . **126.45**

**PRECISE SPHERES OF EUTECTIC SOLDER FOR SPECIALIZED SOLDERING NEEDS**

Each ball is plated with 24K gold to protect the surface from atmospheric contamination. When soldering gold plated components the gold on the solder ball helps to reduce the solvent action of the solder for the gold plate. As soon as the solder is heated to melting temperature the gold disappears and the color change signals the temperature of the solder. This phenomena may be used to calibrate the temperature setting of the Pulse-Dot Controller . . . Circon Golden Solder Balls contain no fluxing agent. This permits the user to choose the most suitable flux for the particular job. Sputtering and spattering are eliminated because the flux is not confined in a core . . . (Circon Golden Solder Balls are formed from the tin-lead eutectic 63-37). Other alloys are available on special order.

**SIZE VOLUME CHART**

| Circon Solder Ball Part Number | Solder Ball Dia. | | | | | | | | | | | | | Approximate Values |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSB-1 | .005 | 1 | | | | | | | | | | | | $11.86/C |
| CSB-2 | .007 | 3 | 1 | | | | | | | | | | | 11.24/C |
| CSB-3 | .010 | 10 | 3 | 1 | | | | | | | | | | 10.67/C |
| CSB-4 | .012 | 15 | 5 | 1.5 | 1 | | | | | | | | | 9.96/C |
| CSB-5 | .015 | 30 | 10 | 3 | 2 | 1 | | | | | | | | 9.44/C |
| CSB-6 | .020 | 60 | 20 | 6 | 4 | 2 | 1 | | | | | | | 8.81/C |
| CSB-7 | .025 | 125 | 40 | 12 | 8 | 4 | 2 | 1 | | | | | | 8.26/C |
| CSB-8 | .030 | 200 | 70 | 20 | 13 | 7 | 3 | 2 | 1 | | | | | 7.63/C |
| CSB-9 | .035 | 300 | 100 | 30 | 20 | 10 | 5 | 2.5 | 1.5 | 1 | | | | 7.18/C |
| CSB-10 | .040 | 500 | 175 | 50 | 35 | 17 | 8 | 4 | 2.5 | 1.5 | 1 | | | 6.41/C |
| CSB-11 | .050 | 1000 | 333 | 100 | 66 | 33 | 17 | 8 | 5 | 3.3 | 2 | 1 | | 5.82/C |
| CSB-12 | .060 | 1500 | 500 | 150 | 100 | 50 | 25 | 12 | 7.5 | 5 | 3 | 1.5 | 1 | 5.28/C |
| | DIA. | .005 | .007 | .010 | .012 | .015 | .020 | .025 | .030 | .035 | .040 | .050 | .060 | |

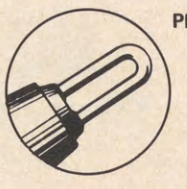
The relative volume of the solder balls is shown above. The figure at the intersection of the size columns is the ratio of the volume. For example, one ball of .030 dia. is equal to 20 balls of .010 dia.

Specify: CSB-LK Circon Golden Solder Ball Laboratory Kit. 100 Each of the twelve different sizes of Circon Golden Solder Balls.

**MICRO CIRCUIT PULSE DOT LOOP**

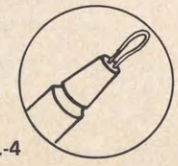
PDS-SL-1

PDS-SL-2



PDS-SL-3

**PRINTED CIRCUIT PULSE DOT LOOP**



PDS-SL-4

PDS-SL-5

PDS-SL-6

| | | | |
|---|---|---|---|
| **PDS-SL-1** | .025" radius | 1 watt | .015 wire |
| **PDS-SL-2** | pointed | 2 watt | .020 wire |
| **PDS-SL-3** | .050" radius | 3 watt | .025 wire |
| **PDS-SL-4** | round | 10 watt | — |
| **PDS-SL-5** | pointed chisel | 10 watt | — |
| **PDS-SL-6** | desoldering | 10 watt | — |

**PDS-SL-1 to 6** . . . . . **$79.80 ea.**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

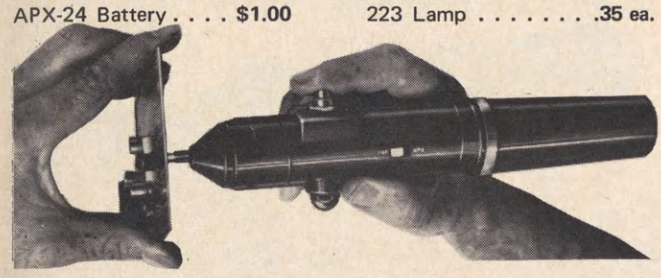
# ENDECO DESOLDERING IRONS - ORYX IRONS

**DESOLDERING KIT 300-K**
Here in one convenient lifetime package is all you need to handle almost any desoldering and resoldering job. For even though the Model 300 Endeco is only 8" long and weighs just 3½ ounces, it's a giant in performance. It removes miniature soldered components in seconds without damage, then resolders new connections even faster and better than regular soldering irons with its 360° "wrap-around" contact. One-hand operation. 40 watts, 115 volts.
**300-K . . . . . $19.90**

Tips. . . . **$1.00 ea.**

Six tips of different sizes from .038 to .090. Includes the new .063 industrial tip with premium alloy. Protected by a tough, attractive blue hammertone finish. Box dimensions: 10" x 3½" x 1¾". Other Kit Models are available. For military users, there's a similar kit bearing the Federal Stock Number 3439-907-5806. For users who prefer a 3-cord iron, we offer Model 300-K-3. Convenient metal stand keeps hot tip off of work surfaces. The tip cleaning tool is just the thing for an occasional cleaning of the hollow tip. . . . . **$20.90**

**"IN-CIRCUIT" TRANSISTOR TESTER**
Makes rapid "go-no go" evaluations of semiconductors while they are still in the circuit. Checks cut-off and condution on PNP and NPN transistors and diodes without the need for costly unsoldering. Open and shorted transistors are readily identified. Diodes and unmounted transistors are tested using extending leads and clips. An optional 7-position diode adapter tests dodes in the circuit. Extending leads and alkaline battery furnished. . . . . **$72.50 ea.**
1330 Diode Adapter . . . . . **16.50 ea.**
APX-24 Battery . . . . **$1.00** 223 Lamp . . . . . **.35 ea.**



**15 W. MINIATURE PLUG-IN IRON**
Standard model furnished with U/L approved 4½' cord set. Ready to plug in! Needs no transformer. Compact design for light production, laboratory, and service use. Irons weigh only 1 oz., plus cord. Heats quickly (about 1 minute) to 725°F. (15 W.) Furnished with 3/32" J tip (also takes other tips and solder cups listed below). Long-life iron-plated J-PL tip now available).
**MODEL 115-15J . . . . . $7.75 ea.**

**Replacement Tips And Elements for Model 115-15J**

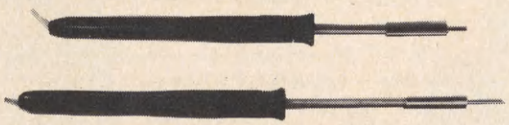
| Type | Material | Diameter | Price ea. |
|---|---|---|---|
| J | Copper alloy | 3/32" | $1.55 |
| J-PL | Copper, iron plated | 3/32" | 2.25 |
| R | Solid nickel end | 1/16" | 1.85 |
| 115-10E | Replacement element—10 watts (special) | | 3.60 |
| 115-15E | Replacement element—15 watts (standard) | | 3.60 |

ORYX soldering irons are small and easy to handle as pencils. Their miniature size helps to speed any precision soldering operation. Damage to adjacent components is eliminated. If you can see it, you can solder it with ORYX!

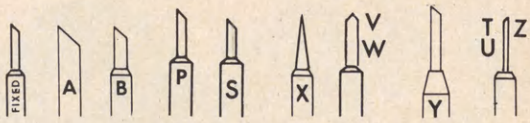
ORYX low-voltage irons are polarized, making it possible to directly ground the shaft, tip, and one side of the heating element. This provides a maximum degree of safety, both to the operator and to delicate circuitry.

**TAPPED TRANSFORMER Model 54204-T**
**Output 4½ to 6-volts in ½ v. steps $7.80 ea.**

**S-1 SOLDERING STAND** A small, adjustable stand to fit all Oryx instruments. Designed to be screwed to bench. Heavily plated. . . **1.95 ea.**



| Model | Volts | Watts | Temp. | Length | Weight | Tip Type | Tip Dia. | Net Ea. | 12 or More |
|---|---|---|---|---|---|---|---|---|---|
| 5A | 6 | 5 | 600° F. | 5½" | ¼ oz. | P | 1/16" | $5.95 | $5.35 |
| 5S | 4.5 | 4.5 | 575° F. | 4¾" | 1/5 oz. | S | 1/16" | 5.95 | 5.35 |
| 6 | 6 | 6 | 652° F. | 6" | ¼ oz. | Fixed | 1/16" | 5.95 | 5.35 |
| 6A | 6 | 6 | 690° F. | 6" | ¼ oz. | B | 3/32" | 5.95 | 5.35 |
| 9-6 | 6* | 8.3 | 750° F. | 6" | ¼ oz. | A | 5/32" | 5.95 | 5.35 |




**REPLACEMENT TIPS** machined from a special copper alloy with outstanding heat conduction characteristics. Nickel plating reduces scaling. Iron-plated tips and solid nickel tips give much longer life with slightly reduced heat transfer. Gold tips for microcircuits only.

| Type | Material | Plating | Diameter | For Model | Price |
|---|---|---|---|---|---|
| A | Copper alloy | Nickel | 5/32" | 9-6 | $ .54 |
| B | Copper alloy | Nickel | 3/32" | 6A, 9-6 | .54 |
| P | Copper alloy | Nickel | 1/16" | 5S, 6A | .60 |
| S | Copper alloy | Nickel | 1/16" (short) | 5S | .60 |
| T | Gold end, copper body | Nickel | 1/25" | 5S, 6A | 2.35 |
| U | Gold end, nickel body | – | 1/25" | 5S, 6A | 2.35 |

| | | | | | |
|---|---|---|---|---|---|
| V-PL | Copper alloy | Iron | 3/32" | 6A, 9-6 | 1.50 |
| W | Copper alloy | Bare (NASA) | 3/32" | 6A, 9-6 | .45 |
| X | Copper alloy | Nickel | 1/25" | 5S, 6A | .85 |
| X-PL | Copper alloy | Iron | 1/25" | 6A, 9-6 | 1.50 |
| Y-PL | Copper alloy | Iron | 3/32" | 18-6 | 2.25 |
| Z | Copper alloy | Nickel | 1/25" | 5S | .85 |
| Z-PL | Copper alloy | Iron | 1/25" | 6A, 9-6 | 1.50 |

# MASTER HEAT GUNS

**Quantity Discounts Available**

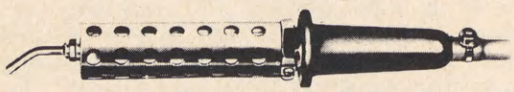
- shrink tubing
- de-solder • set pre-coated rivets • soften, mold, weld, form plastics • dry paint, plastic finishes, condensation, or parts after washing • speed plastic and epoxy curing • handle hundreds of other jobs.

## FLAMELESS HEAT GUNS

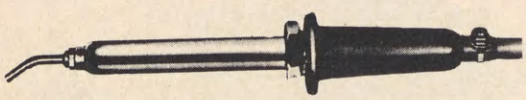
| MODEL | VOLTAGE | AMP. | TEMP. F.° | NET |
|---|---|---|---|---|
| HG 201 | 115 | 5 | 200/300 | $44.30 |
| HG 202 | 230 | 3 | 200/300 | 51.95 |
| HG 301 | 115 | 12 | 300/500 | 44.30 |
| HG 302 | 230 | 5 | 300/500 | 51.95 |
| HG 501 | 115 | 14 | 500/750 | 49.90 |
| HG 502 | 230 | 8 | 500/750 | 55.25 |
| HG 751 | 115 | 20 | 750/1000 | 59.95 |
| HG 752 | 230 | 9 | 750/1000 | 67.85 |

Have adjustable air intake for controlling the air blast temperature; double jacketed heater housing, made of rugged, die-cast aluminum; 3-wire U.L. 50/60 and 400 cycle models available.

**100** Nozzle Adaptor. . . . . **$2.95**
**145** Baffle Plate (for tubing up to 3/4" O.D.) . . . . . **.2.75**
**150** Baffle Plate (for tubing up to 1¼" O.D.). . . . . **.2.95**



**FHT-3** With shield only. . . . . **$79.00**



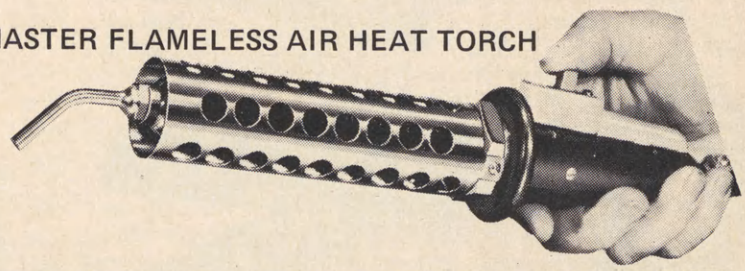
**FHT-4** No switch or shield . . . . . **$75.00**

**SS-1 UNIVERSAL ROUND TIP** A tip for tight-corner hand welding. . . . . **$5.00**

**SS-2 COMBINATION WELDING & TACKING TIP $8.50**

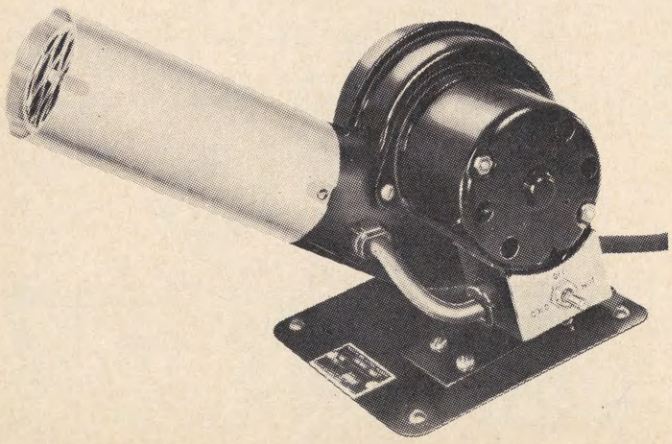
**UNIVERSAL HIGH SPEED TIP** SS-4 should be used with 450 watt element only.
**SS-3** 1/8" and 5/32" diameter welding rod. . . **$27.00**
**SS-4** 3/16" diameter welding rod . . . . . **.27.00**

## NEW MASTER FLAMELESS AIR HEAT TORCH



| CHART OF APPROXIMATE TEMPERATURES OBTAINED ¼" FROM NOZZLE IN F° @ 120 VOLTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SPECIFY RATING WHEN ORDERING | NET RESALE | POUNDS OF PRESSURE | | | | | | |
| | | RATING 8 lbs. | 7 lbs. | 6 lbs. | 5 lbs. | 4 lbs. | 3 lbs. | 2 lbs. |
| FHT-67-1 W/Shield<br>FHT-67-2 Less/Shield | $88.00<br>85.00 | 250 Watts 250° | 300° | 330° | 360° | 390° | 420° | 500° |
| FHT-67-1 W/Shield<br>FHT-67-2 Less/Shield | 90.50<br>87.50 | 350 Watts 350° | 400° | 450° | 550° | 550° | 600° | 700° |
| FHT-67-1 W/Shield<br>FHT-67-2 Less/Shield | 92.50<br>89.50 | 450 Watts 450° | 500° | 550° | 600° | 650° | 700° | 850° |
| FHT-67-1 W/Shield<br>FHT-67-2 Less/Shield | 94.50<br>91.50 | 550 Watts 550° | 600° | 650° | 700° | 775° | 875° | 1050° |

Operates in contaminated atmosphere without danger. Weighs a mere 1 lb. Pinpoints heat in small areas at any selected pressure. Temperatures plus or minus 1°. Works off conventional air compressors, small motor driven compressors or inert gas. All stainless steel barrel and nozzle. Comes with 10' contaminate-proof hose. Welds PVC's, polypropylenes, polyethylenes. Welding tips and carrying case available as optional equipment.



Mounts permanently for production line use or move from location to location. 2" diameter nozzle concentrates heat on desired area. 6" x 6" base, 6" high over-all. Attachments available. Choose from 6 models.

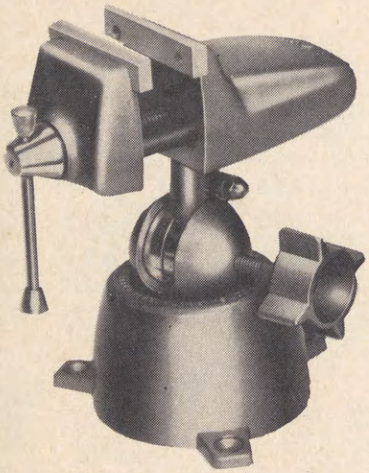
| MODEL | VOLTAGE A.C. | CYCLE | AMP. | TEMP. F° | AIR VOLUME C.F.M. | AIR VELOCITY F.P.M. | NET RESALE |
|---|---|---|---|---|---|---|---|
| AH 301 | 115 | 60 | 10 | 300 | 14.82 | 1425 | $56.65 |
| AH 302 | 230 | 60 | 5 | 300 | 16.2 | 1550 | 68.35 |
| AH 501 | 115 | 60 | 14 | 500 | 13.75 | 1375 | 59.95 |
| AH 502 | 230 | 60 | 6 | 500 | 14 | 1400 | 71.65 |
| AH 751 | 115 | 60 | 18 | 750 | 13.5 | 1350 | 78.35 |
| AH 752 | 230 | 60 | 11 | 750 | 13.5 | 1350 | 90.25 |

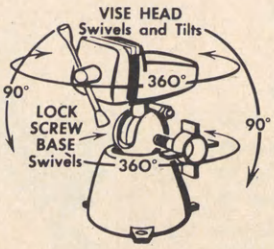


ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# COLBERT "PANA-VISES AND POSITIONERS"

**QUANTITY DISCOUNTS:** 1 - 5 Net 6 - 12 10% 13 - 24 15% 25 - 99 20% 100 + Ask for Quotations





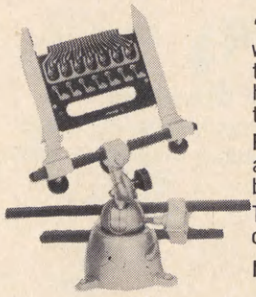

Other models available

**"PANAVISE"—**

- Locks rigid in any position.
- Vise head pans to any position and locks tight.
- New compound locking mechanism most rigid of its kind.
- Removable vise head-fixtures of your design can be inserted and held rigid in any position.
- Excellent for assembly operations—allows work to be quickly set in any position—improves efficiency.
- Standard with replaceable nylon jaws—Steel Jaws available $2.00 per set.

**MODEL 301** **$17.95**

**#311 BENCH CLAMP** Drilled, and tapped, for "PANAVISE" work Positioners. Holds models 301, 330A. Height 6". Width 7". F.O.B. Phila. **$6.95**

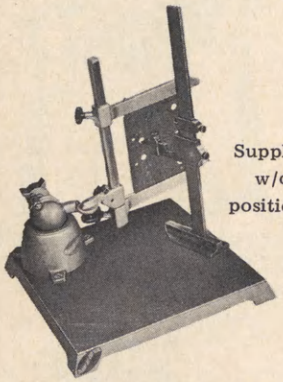


**"PANAVISE" PRINTED CIRCUIT BOARD HOLDER**—A versatile "work holder within a work holder" which makes it easy for the operator to rotate, tilt, and tip the printed circuit up and down. A single lock screw rigidly holds the circuit board holder or fixture in the desired position. Spring tension strip allows quick insertion and removal.

Printed circuit board holders are furnished with 10" holder bars (Standard) to hold 8" width boards. For longer Bars, add per inch—20¢. Order bars 2" longer than actual width of board.

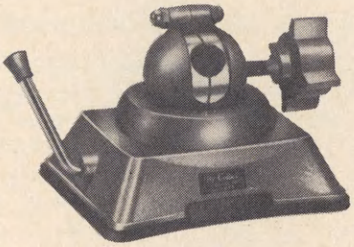
The fastest handling work positioner for circuit board use. Holds boards of any shape: oblong—square—oval—special shapes.

**MODEL 315-00** **$25.90**

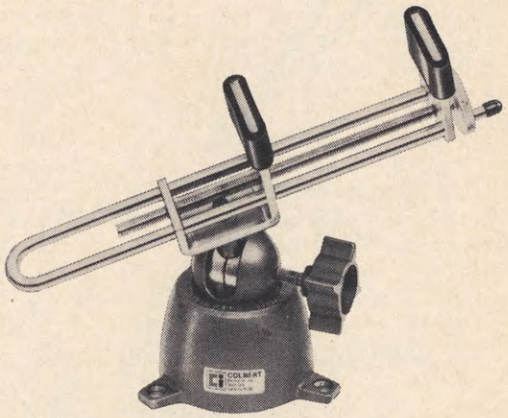


Supplied w/o positioner

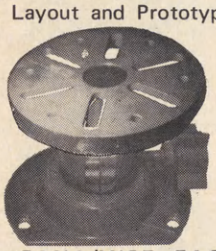
**#310 SURFACE PLATE** For use with #300 and #305 Positioner. For Shop, Layout and Prototype Work. **$14.95**



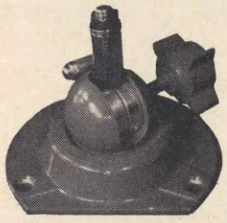
**#380** Attachable to most smooth non—porous surfaces. For fast flexible setups. H - 3½" D - 5 1/8 W - 4¼" Wt. - 2¼" lbs.
**VACUUM BASE** **$15.95**



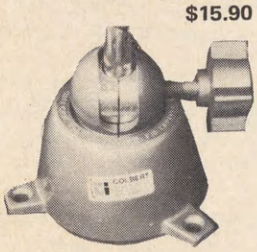
**#396 CIRCUIT BOARD HOLDER** 0 to 6½ inch grip range. . . . . **$17.95**



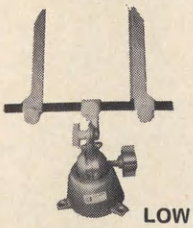
**#312 PANA/VISE FACE PLATE** With low model base. **$15.90**



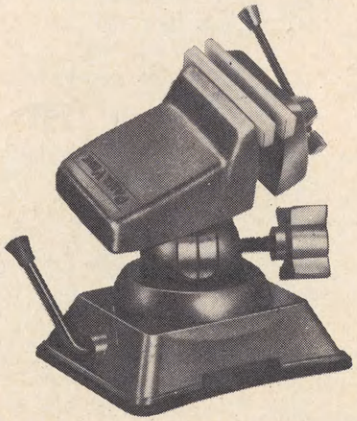
**#305 LOW MODEL** With straight front to flush mount on work bench. 2½" height. **$10.95**



**#300 STANDARD MODEL** Holds work approximately 4" to 5" above bench. **$10.95**



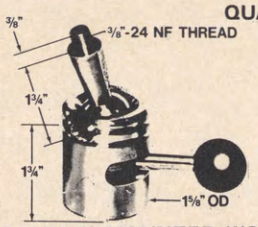
**LOW BASE**
**#315–05 CIRCUIT BOARD HOLDER** Fastest handling work positioner used. Holds boards of any shape. **$25.90**



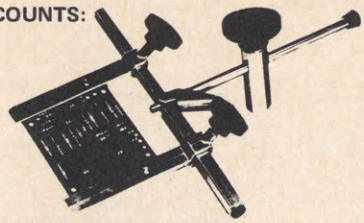
**#381** Mobility, positioning and holding power for greater versatility (#380 Positioner #303 Vise Head). **VACUUM BASE** **$22.95**

# POSITIONERS - DYTEX - WILTON

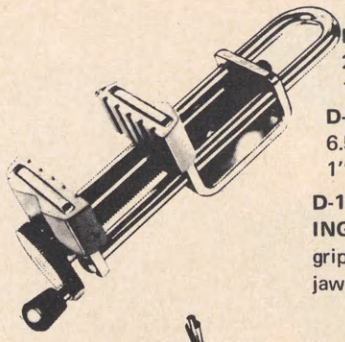
**QUANTITY DISCOUNTS:** 1 - 9 Net 10 - 50 8% 51 + Ask for Quotations




**D20 BENCH MOUNTED WORK POSITIONER** A pre-loaded ball joint holds its position unlocked. Horizontal movement of the handle locks the joint in position. **$9.25**



**D-16 PRINTED CIRCUIT HOLDER** Quick release lever-action and spring-loaded arm assembly for rapid insertion and removal of PC cards. Grip range is .875 to 7.5". Arm length is 4". **$19.50**

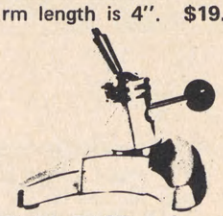


**D-10 3-INCH VISE** Has a 0 to 2.5 inch grip range. Reversible 1" x 1½" jaw pads. **$6.00**

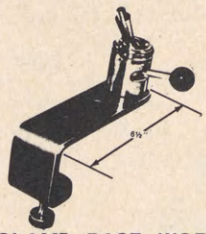
**D-11 6-INCH VISE** Has a 0 to 6.5 inch grip range. Reversible 1" x 1½" jaw pads. **$6.50**

**D-12 10-INCH SELF-CENTERING VISE** Has a 0 to 9.5 inch grip range. Reversible 1" x 1½" jaw pads. **$14.50**

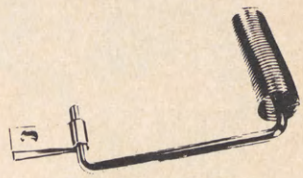
**D22 ROUND BASE WORK POSITIONER** Free-standing or bolts to the bench. Has a 6-inch base. 2 lbs. **$11.25**



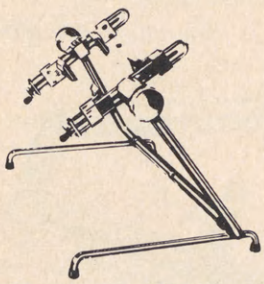
**D24 DELTA BASE** A free-standing heavyweight design. Three-point, non-skid plastic feet and concave working area. 5 pounds. **$12.25**



**D21 CLAMP BASE WORK POSITIONER** For 5/8" to 2" or 2" to 3½" bench thickness. **$12.25**



**D-14 ADJUSTABLE LEADWIRE HOLDER** For use with the D-10 and D-11 Vises. **$3.75**

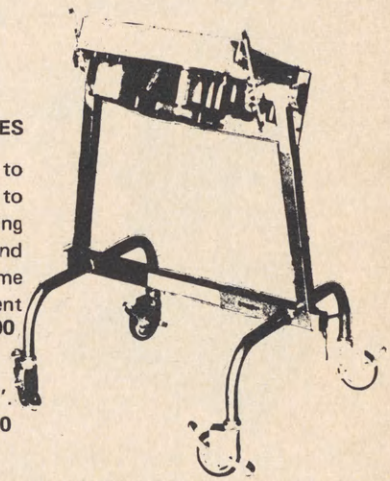


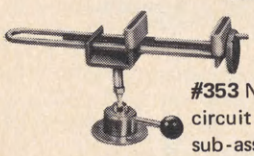
**D28 BENCH MODEL HOLDING FIXTURE** Is intended for bench top use up to 150 lb. load.
D28-120 (w/ D-120 scissors clamps)
D28-122 (w/ D-122 chassis clamps)
D28-125 (w/ D-125 mounting plates)
D28-12 (w/ D-12 10-inch self-centering vise. **$37.50**

**D3000 MOBILE AND STATIONARY HOLDING FIXTURES**

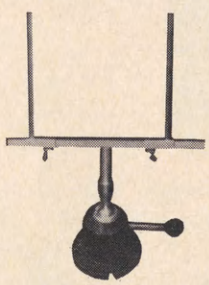
Speeds-up assembly and reduces damage. Handles objects up to 300 pounds. With special mounting plate, almost any object up to 96 inches wide can be worked on. The clamps and mounting plate allow 360° rotation. Features high torque disc brakes and two-way locking casters. Dark beige baked enamel and chrome plated steel finish. Available with any or all of three different clamps. **$75.00**

**D3000-X BEAM EXTENSION KIT** Width from 30" to 96". **$15.00**

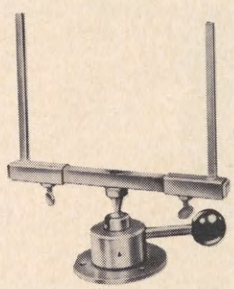




**#353** New vise holds circuit boards and sub-assemblies gently but securely. Has 2" rubber protected jaws.



**#372** Printed circuit holder, adjusts for 10" boards to 20 lbs.



**#371** Printed circuit holder, adjusts for 3 to 6" boards to 9 lbs.

**#364** Utility vise for heavier electronic assemblies. Steel jaws are 2½" wide and replaceable.

| DESCRIPTION | WIDTH ADJUSTMENT | HEIGHT OF POSTS | BASE DIAMETER | OVERALL HEIGHT | SHIPPING WT. LBS. | PRICE |
|---|---|---|---|---|---|---|
| **371** Printed Circuit Holder with No. 345 Work Positioner | 3" - 6" | 4" | 2½" | 5¼" | 2 | **$11.35** |
| **372** Printed Circuit Holder with No. 344 Work Positioner | 3" - 10" | 6" | 3¾" | 10½" | 5 | **15.40** |
| **353** Electronic Vise with No. 345 Work Positioner | 0 - 6½" | — | 2½" | 4½" | 3 | **14.50** |
| **364** Utility Vise with No. 354 Work Positioner | 0 - 2¼" | — | 3½" | 6¾" | 5 | **17.20** |



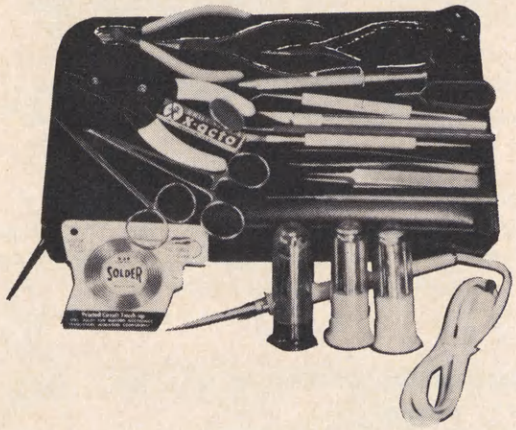
ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# TOOL KITS

**Kits custom made to your own specifications. Ask for quantity quotations.**

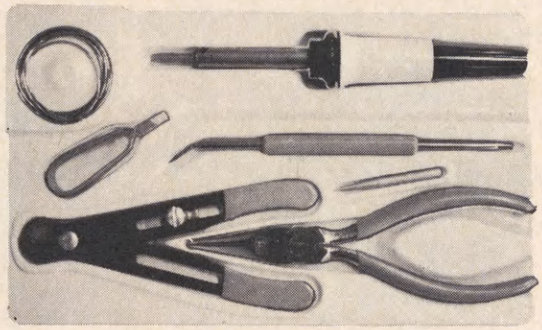
**K1050 DELUXE BASIC ASSEMBLY KIT** CONTENTS: Soldering iron with non-freezing tip, diagonal cutter, chain nose plier, wire stripper, fork hook soldering aid, knife brush soldering aid, small and large heat sinks, phillips screwdriver, small, medium and large round shank screwdrivers, knife and assorted blades, desoldering blades, and tool box. . . . . **$25.00 ea.**

**KT-4 MICRO ASSEMBLY KIT** Contains: wire stripper, diagonal cutter, chain nose plier, flat nose plier, TW-301 tweezer, TW-905 tweezer, 27C heat sink, 51F heat sink, scissors, eye loupe, soldering iron with 3 assorted tips, X-Acto knife with assorted blades, small parts holder, probe, SH-20G soldering aid, miniature socket wrench set, screwdriver set, open end wrench set, mirror, low melting solder, and tool box. $59.00 value for. . . . . **$45.00**




**TECHNICIANS KIT KT-3** Contains: solder, flat nose pliers, chain nose pliers, diagonal cutters, midget diagonals, S55RG diagonals, offset pliers, scissors, screwdriver/nutdriver kit, scribe, wire stripper, soldering iron, X-Acto knife with assorted blades, 10X eye loupe, Tec-tweezers, utility tweezer, mirror, file kit, probes, solder aid kit, lead bender, screw starter, heat sink, contact "Renue", lead cleaner, 6" rule, socket key set, S.S. brush, tapping tool, TW-301 tweezer, open end wrench set, drill set, pen oiler, screwdriver set, 51-F heat sink and tool box. $110.00 value . . . . . **$89.00**

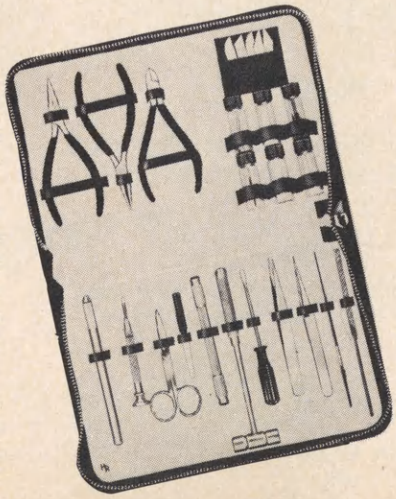
**K-1060 STARTER KIT** CONTENTS: Chrome plated chain nose cutter, adjustable wire stripper for #10 to #20 wire, heat sink (thermal shunt) made of berylco 10. Non-magnetic fork and hook tool. Solder will not adhere to it. For looping, coiling, bending, guiding and probing, Alpha 60/40 alloy rosin cen-tri-core. Solder heavy plastic box 6½ x 10½ x 1¾". Kwikie soldering iron with 25 watts, 3/16" screwdriver and 1/6" taper bevel tips. Heats to 720°. . . . . **$17.50**



**#36-721 TECHNICIANS KIT**

Over 23 different high quality tools for gripping, cutting, bending, drilling, tapping, filing, broaching and many other uses. Lined zipper case of durable imitation leather, 6¾" x 10¼".

CONTENTS: 4½" chain nose pliers, round nose pliers, diagonal nippers, knife handle and 5 blades, jeweler's screwdriver with 3 blades, metal cutting scissors, metal point oiler, double-end pin vise holder, brass head mallet with metal handle, 3" plastic handle midget screwdriver, 5" nickel plated tweezers with sharp points, 5" needle file, self-locking tweezer clamps, miniature tap, 5 cornered cutting broach with tapered shank, and 6 glass vials. . . . . **$32.00**

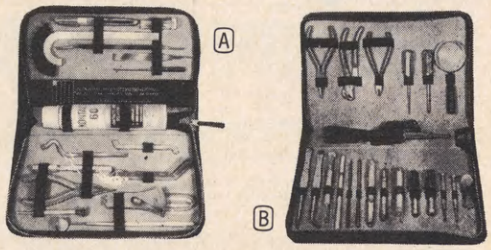


**MASTER 15-PIECE RELAY TOOL KIT (FIG. A)**

Precision made, professionally designed tools for adjustment and maintenance of relays, contactors, switches, controls, etc. Consists of: SA-7 and SA-17 spring adjusters; G-50 spring tension gauge; thickness gauge; duck bill plier; screwdriver; tweezer; mirror; four-way tool; brush; armature and stop benders; contact spray; pocket contact burnisher with 12 blades. Packaged in leather case.

**K-55 Relay Tool Kit**—Net Each. . . . . **$34.00**

**No. KR-6 Compact Relay Kit**—Leather case (not illustrated). Net Each. . . . . **$19.90**




**MASTER 20-PIECE ELECTRONIC TOOL SET (FIG. B)**

Includes major tools essential for service, repair, and production of electronic and other type equipment. High-quality set includes pliers, drivers, tweezers, burnisher, soldering iron and aids, files, magnifier, etc. Deluxe, leather zippered case engineered for protection of tools and easy portability.

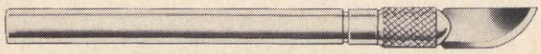
**K-600 Electronic Tool Set**—Net Each. . . . . **$29.90**

**No. KE-7 Compact Electronic Set**—In vinyl case (not illustrated). Net Each. . . . . **$9.90**

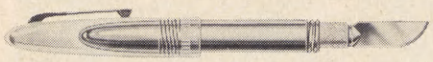
# X-ACTO KNIVES

**QUANTITY DISCOUNTS:** 1 - 11 Net 12 - 49 10% 50 - 99 15% 100 + 20%

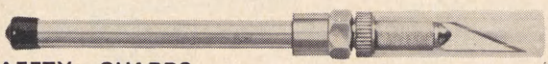
**No. 1 KNIFE** For light to medium work. Aluminum handle (5" long, 5/16" diameter) complete with No. 11 blade. . . . . .**$.65**



**No. 2 KNIFE** For medium to heavy work. Aluminum handle (5" long, 7/16" diameter) complete with No. 22 blade. . . . . .**$.80**

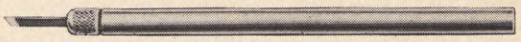


**No. 3ST PEN-KNIFE** Clips to pocket. "See Thru" Cap reveals blade. Gold finish metal barrel. Complete with No. 10 blade. Length closed 5¼". Also accommodates No. 11 and 16 blades. . . . . .**$1.00**

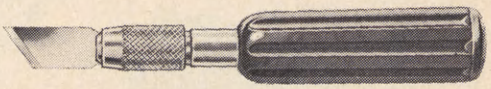


**SAFETY - GUARDS**
Newest safety advance, see-thru butyrate safety-guards slip on X-acto's #1 and #2 knives, a twist of the chuck locks the guard down for use, up for safety. Hexagonal chuck prevents knife from rolling.

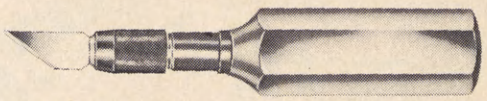
**No. 1 SGK knife with guard** . . . . . .**$1.15**
**No. 1 SG guard only for #1 knife** . . . . . .**.50**



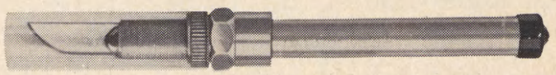
**No. 4 KNIFE** Aluminum handle with detachable balde (5" long with blade, 1/4" handle diameter). . . . . .**$.30**



**No. 5 KNIFE** For heavy work. Plastic handle with metal blade lock (4¾" long) complete with No. 19 blade. . . .**$1.25**



**No. 6 KNIFE** For heavy work. Solid aluminum hexagonal handle (4¾" long) complete with No. 24 blade. . . . . .**$2.00**



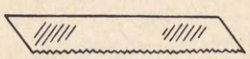
**No. 2 SGK knife with guard** . . . . . .**$1.40**
**No. 2 SG guard only for #2 knife** . . . . . .**.60**

**BLADES FOR KNIVES** #1, #1SGK, #3ST

**#10** eraser; correct stencils, fine general cutting and carving.

**#11** correct printed circuits; clean excess solder; gasket cutting and deburring.

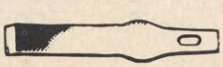
**#12** correction blade and stencils.



**#13** precision saw cutting plastics.

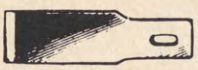
**#14** circle cutting; straight, vertical cuts.

**#16** stencils; scoring; etching; small holes, notches.



**#17** 1/4" chisel blade for narrow cuts.

**BLADES FOR KNIVES** #2, #2SGK, #5, #6.



**#18** ½" chisel blade for deep cross cuts.

**#19** deburring; chiseling, rough shaping.

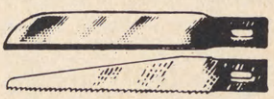
**#22** trimming potting compounds, corner cutting and whittling.

**#23X** double edged; close quarter, angled corners; trimming potting compounds;

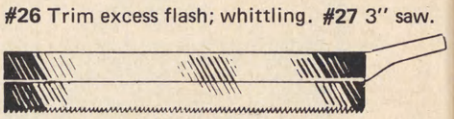
**#24** close corner cuts, templates, mats; deburring; trim potting compounds;

**#25** trimming, potting compounds, excess flashing, heavy cutting; general carving; whittling.

**#28** hooked for curved shaping, whittling; leather, linoleum.



**#26** Trim excess flash; whittling. **#27** 3" saw.



**No. 34** razor saw blades: ¾" wide cutting edge 4½" long.

**No. 35** razor saw blades: 1" wide cutting edge 4½" long.

**BLADE PRICES**

| STYLE # | PRICE |
|---|---|
| Blades: | |
| **#1** Assortment (pkg. of 5) | **pkg. $.60** |
| **#2** Assortment (pkg. of 5) | **pkg. .60** |
| **#4B** Blades (pkg. of 5 alike) | **pkg. .25** |
| **#'s 10, 11, 12, 13, 16, 17** | **pkg. .60** |
| **#14** (pkg. of 5 alike) | **pkg. .75** |
| **#'s 18, 19, 22, 24, 25** (pkg. of 5 alike) | **pkg. .60** |
| **#23X** (pkg. of 5 alike) | **pkg. .75** |
| **#28** (pkg. of 5 alike) | **pkg. .75** |
| **#26** (pkg. of 2 alike) | **pkg. .30** |
| **#27** (pkg. of 2 alike) | **pkg. .30** |
| **#15** (pkg. of 3) | **pkg. .60** |
| **RAZOR SAWS:** | |
| **#34** | **$.45 ea.** |
| **#35** | **.50 ea.** |

**BULK-PACKS:** #'s 11, 16, 19, 24, available in packages of 100.
**#'s BP 11, BP 16, BP 19, BP 24 . . . $10.00**

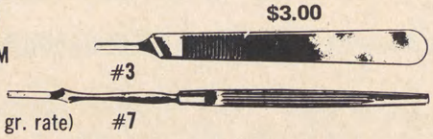


ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# SCALPELS - KNIFE SETS

10-M 11-M 12-M 15-M

**$ 2.00** per doz.
**18.00** per gr.
**15.00** per gr. (at the 5 gr. rate)



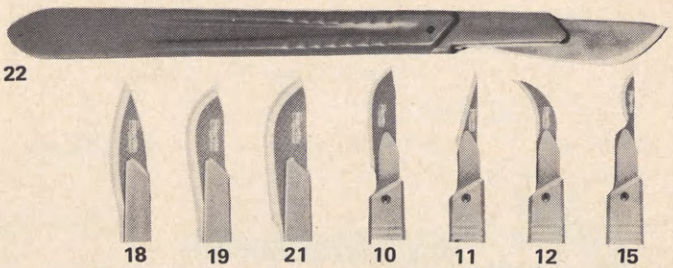
#3 OR #7 HANDLE SPECIFY
**$3.00**

#3

#7

**INDUSTRIAL MICRO SCALPELS**—Designed especially for industrial purposes, the following blades have a sharp cutting edge made of the finest steel with well balanced handles. For deburring, cutting, trimming, correcting printed circuit boards, etc.

Blades packaged 1 style per package, 6 blades per package. Specify; Number desired, we can mix if purchased in quantities of one dozen or more.



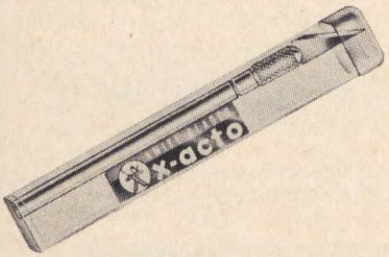
22

18 19 21 10 11 12 15

**ONE PIECE DISPOSABLE SCAPEL** Surgical steel blade permanently affixed to light weight plastic handle. One piece construction, can be re-used many times. Available in sterile package for clean room.

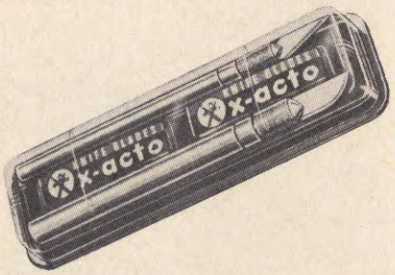
**6 for $3.95** **12 for $5.00** **144 for $58.00**

**QUANTITY DISCOUNTS:** **1 - 10 Net** **11 - 50 10%** **51 - 100 15%** **101 + 20%**

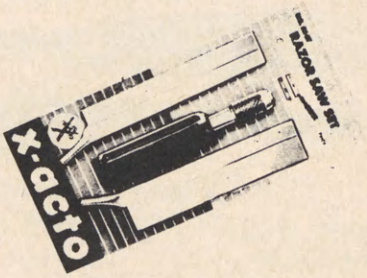



**No. 51 KNIFE SET** No. 1 Knife with 5 extra assorted refill blades. . . . . **$1.25**

**No. 52 KNIFE SET** No. 2 Knife with 5 extra assorted refill blades. . . . . **$1.40**



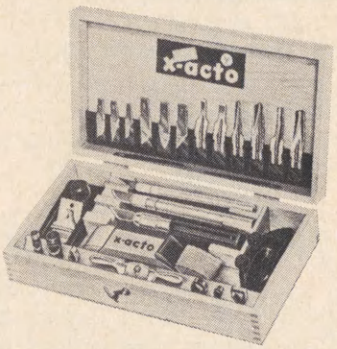

**No. 62 DOUBLE KNIFE SET** Nos. 1 and 2 Knives with 10 extra assorted refill blades in clear plastic case which serves as permanent container. . . . . **$2.75**




**No. 53 RAZOR SAW SET** No. 5 Handle and one each of No. 34 and No. 35 saw blades. For fine and accurate cross cutting, trimming and notching of metal, wood and plastic. . . . . **$2.00**

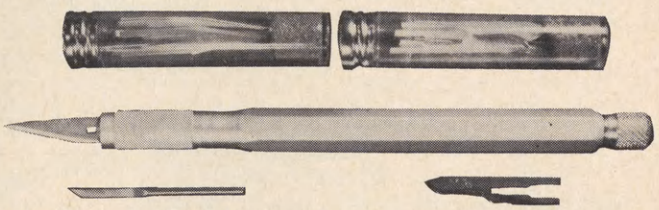
**No. 82 KNIFE CHEST** Nos. 1, 2 and 5 Knives with 9 extra assorted refill blades. Natural-finish wood chest with plastic blade holder. . . . . **$4.95**

**No. 83 DE LUXE KNIFE CHEST** Nos. 1, 2 and 6 Knives with 18 extra assorted refill blades. Natural-finish wood chest with plastic blade holder. . . . . **$6.75**




**No. 86 X-acto Tool Chest:** Contains #1, 2, 5 knives and complete assortment of blades, gouges, routers, punches. Has X-acto planer, sander, spokeshave, a stripper, steel rule. In handsome fitted wood chest. . . . . **$14.50**

**No. E20S RETRACTABLE BLADE KNIFE** Blade retracts when not in use. No exposed blades to cut unwary fingers. Has hex top. Tool can't roll from work bench to cut legs or feet as it falls. . . . . **$3.00**

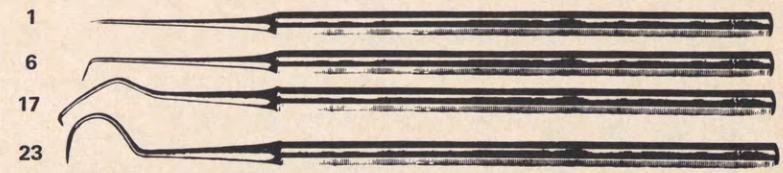


**THE ÜBER SKIVER** A precision-engineered cutting tool. Rear draw-bar clutch keeps blade tight. Improved collet accepts most blades, including round tools and won't freeze. Hex shaped so you can lay it down and it won't roll. Deeply knurled grip gives positive handling control. **Handle w/1 Blade** . . . . . **$1.75**
Knife and 12 assorted blades . . . . . **$8.50**

# ASSEMBLY ACCESSORIES

**PROBERS** Multi-purpose offered in 4 separate shapes, all stainless steel. Many uses in inspection, soldering and probing. Any assortment.

**$1.25 ea.** **$12.00 doz.** **$132.00 gr.**



**Miniature Hand Vises** —Length 4½"—Square jaws—Hollow Handles

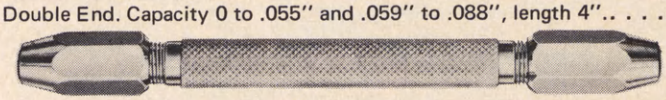
**PV-654**—Width of jaws ½" ..... **$3.30**

**PV-655**—Width of jaws ⅝" ..... **$3.30**

**PIN VISES**

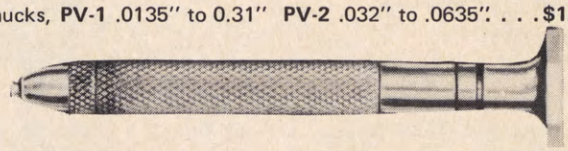
**PV-3** With Sliding Ring. Capacity 0 to .055", length 4¼". . . . . **$1.25**

**PV-6** Double End. Capacity 0 to .055" and .059" to .088", length 4". . . . **$1.35**



**PV-7** Heat-treated chucks. Capacity 0 to .088" & .089" to .118", length 4". **$1.40**

Heat-treated chucks, **PV-1** .0135" to 0.31" **PV-2** .032" to .0635". . . . **$1.25 ea.**



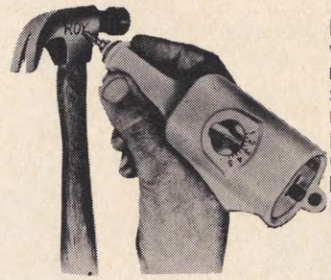
**DEBURRING SCRAPERS**
With Hardwood Handle

**SR-950**—Hollow ..... **$1.70**

**SR-951**—Solid ..... **$1.70**

**HEX-LOC MULTIPLE SOCKET WRENCH**

Patented locking feature permits the wrench to be locked in position for any size nut. Wrench has sockets to fit nine sizes of nuts from #2 to 1/4" and hex-head screws in sizes from 3/16" to 7/16" hex inclusive..... **$4.95**

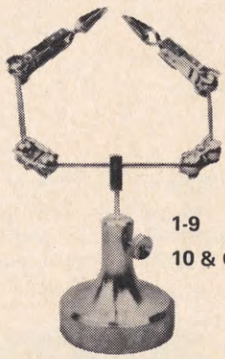


**ELECTRIC ENGRAVER** —Provides fast, easy method of marking on materials ranging from hardened tool steel to glass. 7,200 strokes per minute. High impact nylon housing and powerful motor. Complete with storage case. Model 29 engraver (with carbide point) ..... **$14.95**

**No. 9924**—Replacement carbide point **$2.50**

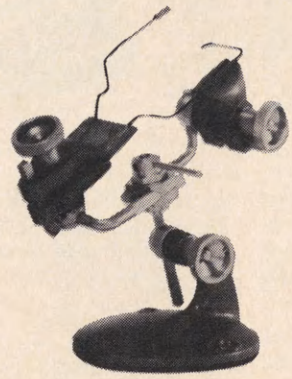
**No. 9929**—Diamond point (for industrial, long-duty use) **$7.50**

**SOLDERING JIGS** Perfect "third hand" for soldering, sub-assembly fabrication and final inspection. Fully adjustable friction type ball joints which allow unlimited number of work angles. Maximum reach on either jig: 7"-90° across. Regular model screw-type closing tips. Now available with triple chromed base for clean room use.

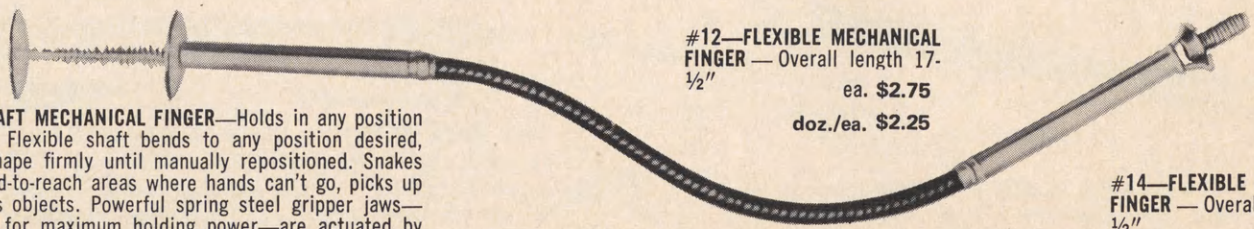


**1-9** **$19.95**

**10 & Over** **$16.95**



**FLEXI-VISE "TWIN"** An infinitely adjustable jig, each set of jaws capable of rotation through 360° in every plane independently of the other, enabling any compound angle between the two to be achieved. Positive locking enables any such setting to be maintained for repetition work. Two separate components can now be held in any desired position relative to one another. Jaw capacity: 11/16 inch (17.5 mm). Jaw width: 1 7/16 inch. . . . . **$29.50 ea.**



**#12—FLEXIBLE MECHANICAL FINGER** — Overall length 17-½"

ea. **$2.75**

doz./ea. **$2.25**

**FLEX-SHAFT MECHANICAL FINGER**—Holds in any position desired. Flexible shaft bends to any position desired, holds shape firmly until manually repositioned. Snakes into hard-to-reach areas where hands can't go, picks up all types objects. Powerful spring steel gripper jaws—notched for maximum holding power—are actuated by easy to operate plunger. Bright, heavy plating provides resistance to corrosion.

**#14—FLEXIBLE MECHANICAL FINGER** — Overall length 26-½"

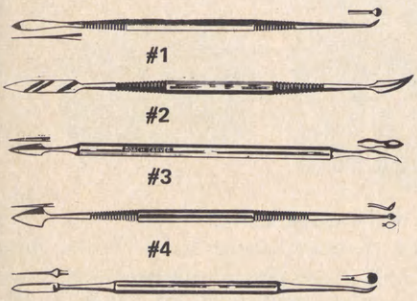
ea. **$5.50**

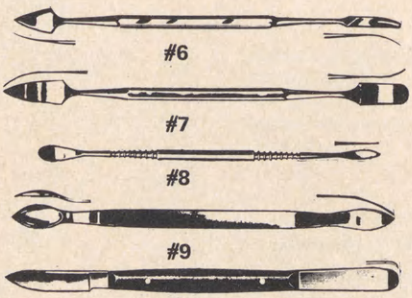
# ASSEMBLY ACCESSORIES

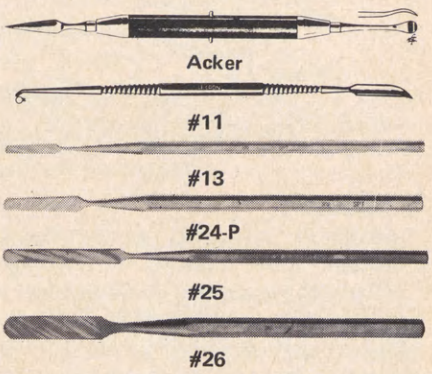
**STAINLESS STEEL CARVERS & SPATULAS** The following carvers and spatulas have a multitude of uses in laboratories. All made of high grade polished stainless steel, resistant to corrosive effects of most materials. Most instruments are approximately 7" long. Prices are as follows:

**$4.50 ea.** **$50.00 dz.** **$425.00 gr.**

*Acker's instrument only . . . . . **$7.50 ea.** . . . . . **$60.00 dz.**




**MICRO SPATULAS** All stainless steel micro spatulas are flexible and efficient aids for mixing and blending small quantities of material. Materials have very little tendency to adhere to blades and the handles are extremely resistant to corrosion.

Set of 3: No. 10, 11, 12 . . . . . **$4.00**

Individual number, minimum order 1 dz. per number . . . . **$14.00**

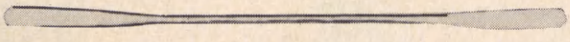
**No. 10T** Teflon Coated . . . . . **$1.50 ea.**

Set of 2: No. 15, 17 . . . . . **$4.25**

Individual number, minimum order 1 dz. per number . . . . **$23.50**

**No. 18** MICRO SPOON **$2.75 ea.** **$22.50 dz.**

**No. 18T** Teflon Coated . . . . . **$3.40 ea.**



**No. 10** approximately 8" O.A.L., flat ends; similar, 2" long. Glazed finish.

**No. 11** approximately 8" O.A.L. with flat ends 1½" long. Glazed finish.

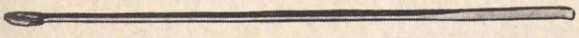
**No. 12** approximately 8" O.A.L. with flat ends 2" long. One end slightly tapered, glazed finish.

**No. 15** 7" O.A.L., flat ends, 2" long. One end round edge, other end square edge, mirror finish.

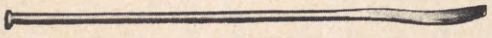
**No. 17** 6¼" O.A.L., flat ends 1 1/8" long. One end round, other tapered.

**No. 18** micro spoon, 9" O.A.L., one end spoon shape 1 1/8" length by 9/16" at widest part. Other end flat 1 7/8" long. Excellent for transferring powdered or crystalline samples. Square end used for scraping and chopping small grains.

**#1 MICRO SPATULA 6¼" O.A.L.** Stainless steel .103 wire. Flat end 1¼" long. Spoon end 1/2" long x 1/8" wide.



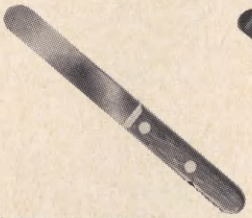
**#2 MICRO SPATULA 6½" O.A.L.** Stainless steel .103 wire. Sharpened bent end 1½" long. V-shaped formed end.



**#3 MICRO SPATULA 5½" O.A.L.** Stainless steel .103 wire. Curved end 1¼" long. Pestle end 3/16" diameter.

#1, #2 or #3 Micro Spatulas (specify) . . . . . **$9.00 dz.**

Set of three (one each) . . . . . **$2.25**



**#100A SPATULA – FULL TANG** 3 5/8" Extra Stiff Blade for heavy mixing. **$2.50 ea.** **$24.00/dz.**

**#4504T-4" Stainless Steel, TEFLON Coated Spatula.** Precision ground for Uniform Flexibility. **$2.40 ea.**

**#4514½T Stainless Steel, 4½" TEFLON Coated Palette Knife.** Precision ground for Uniform Flexibility. **$2.70 ea.**

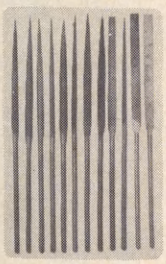
**NEEDLE FILES**—Round handles, specially designed for smoothing and finishing small parts. Very handy for instrument makers, tool and die makers and general laboratory work. Finest quality Swiss files are carefully tapered and uniformly cut.

All 14 c/m $.65 ea.

| | |
|---|---|
| KNIFE | FI-1810—14 c/m FI-1826—16 c/m |
| ROUND | FI-1811—14 c/m FI-1827—16 c/m |
| SQUARE | FI-1812—14 c/m FI-1828—16 c/m |
| BARRETTE | FI-1813—14 c/m FI-1829—16 c/m |
| WARDING | FI-1814—14 c/m FI-1830—16 c/m |
| MARKING | FI-1815—14 c/m FI-1831—16 c/m |

All 16 c/m $.75 ea.

| | |
|---|---|
| 3 SQUARE | FI-1816—14 c/m FI-1832—16 c/m |
| HALF ROUND | FI-1817—14 c/m FI-1833—16 c/m |
| EQUALLING | FI-1818—14 c/m FI-1834—16 c/m |
| SLITTING | FI-1819—14 c/m FI-1835—16 c/m |
| ROUND EDGE | FI-1820—14 c/m FI-1836—16 c/m |
| CROSSING | FI-1821—14 c/m FI-1837—16 c/m |



**SET OF 12 NEEDLE FILES**

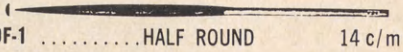
**FI-1825**—14 c/m in Plastic Pouch. Set **$5.25**
$5.00 ea.—dz. rate

**FI-1850**—16 c/m in Plastic Pouch. Set **$7.50**
**$6.75** ea.—dz. rate

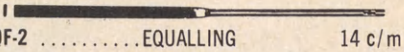
**DIAMOND FILES**—New micro finish diamond escapement files for tool and die makers and laboratory work. Effective results with aluminum and carbides. Long-life tool made to our exacting specifications. **$10.00 ea.**

**Set of 4 $35.00**

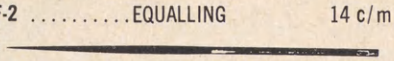
**SHAPES**



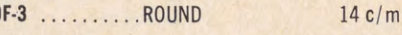
DF-1 . . . . . HALF ROUND 14 c/m



DF-2 . . . . . EQUALLING 14 c/m



DF-3 . . . . . ROUND 14 c/m



DF-4 . . . . . SQUARE 14 c/m

# ASSEMBLY ACCESSORIES

**QUANTITY DISCOUNTS:** 1-11 Net 12-24 10% 25-49 15% 50-100 20% 101 + Ask for Quotations

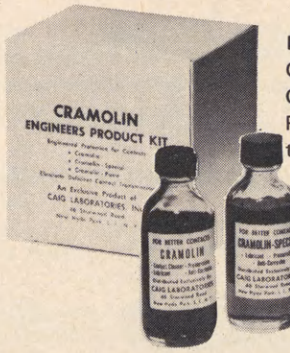
**CRAMOLIN**
**HIGHER PERFORMING ELECTRIC CONTACTS**

Reduces contact resistance and sparking by dissolving oxide film formations. Temperature operating range, 34°C. to 150°C. Effective on all metals and their alloys including gold, silver, copper, etc. Stays on moving contacts. Free of acids. Safe and clean to use, anti-corrosive. Lubricant and preservative. Lasts for years.

**CRAMOLIN:** Fluid for protection and cleaning of old and new contacts.
**CRAMOLIN-SPECIAL:** Fluid for protection of new contacts.
**CRAMOLIN-PASTE:** Semi-solid for protection and cleaning High Voltage/Amperage contacts.

| DESCRIPTION | CRAMOLIN (Red Color) | CRAMOLIN-SPECIAL (Blue Color) | CRAMOLIN-PASTE | *CAEON SOLVENT #27 |
|---|---|---|---|---|
| 2 oz. Glass Bottle | $1.95 | $2.25 | _____ | |
| 4 oz. Glass Bottle | _____ | _____ | _____ | $1.60 |
| ½ pint, Glass Bottle | 6.75 | 7.50 | _____ | 2.85 |
| 1 pint, Glass Bottle | 13.00 | 14.50 | _____ | 4.00 |
| 1 quart, Glass Bottle | 25.50 | 28.00 | _____ | 6.00 |
| ¼ Kg Can (½ lb.) | _____ | _____ | $2.90 | _____ |
| 6 oz. Spray | 3.00 | 3.50 | _____ | _____ |

*(Trichlorotrifluorethane)




**ENGINEERS PRODUCT KIT**
Contains: 2 oz. Cramolin, 2 oz. Cramolin-Special, ½ lb. Cramolin-Paste, technical guide to properties and applications. . . . . **$6.75**

**CRAMOLIN PLASTIK SPRAY**
Air drying, colorless plastic spray coating. Seals, protects, insulates and coats. Is age and weatherproof, water repellent, will not fade. Resists acid and alkaline solutions as well as mineral oils. Withstands temperatures up to +180°C. Protects against short circuits, weakened insulation breakdowns.
6 oz. Can . . . . . **$2.75**

**CRAMOLIN 3-S SPRAY**
A general cleaner, hydro-repellent, dielectric sealer and lubricant. Safe on metals, rubber and synthetics. Reduces arcing, stops sparking and creeping currents. Temperature consistency between 50°C to †200°C.
6 oz. can . . . . . **$4.25**

**CRAMOLIN SPRAY R**
For those who prefer the spray can method of application. Cramolin Spray R has same properties as Cramolin Fluid. Free 6" Extension Spray Tube.
6 oz. can . . . . . **$3.00**

**SURE SHOT PRESSURE SPRAYER**

**MODEL A** 1 QUART CAPACITY Filler Cap is equipped with tire valve stem for standard compressed air chuck. Cap removes for top loading of spray materials. Tested and rated for use with up to 200 pounds of air pressure. Internal parts are made of corrosion resistant materials. Trigger is spring loaded for instant-acting control. Handle-mounted Clean Out Pick is standard.
Chrome plated brass sprayer for use with water base, oil base, and many other types of solutions requiring corrosion resisting materials. Two interchangeable spray jets included: #302 general purpose, and #301 pin stream. . . . . **$15.95**

**NOZZLES**
**#302B** Coarse Mist Spray . . . . . **$1.00**
**#305** Extra Fine Mist Spray . . . . . **1.50**
**#501** Flat, Fan-Shaped Mist Spray. . . . . **1.75**
**#230** Rigid, 3-inch for Model C only . . . **1.00**
**#325** Rigid, 6-inch for Model A only . . . **1.25**
**#230** Comes with pin stream jet . . . . . **1.00**

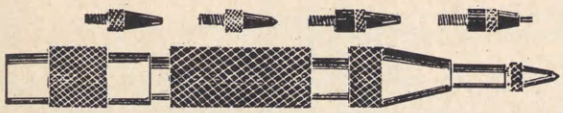
**MODEL C** 6 OUNCE CAPACITY Offer the same operating and construction features as Model A units, but with the compactness and economy of a 6 oz. model. Furnished with all-purpose mist spray jet that converts to pin stream with removal of jet spiral within the nozzle. Chrome plated brass sprayer. **$5.45**

**AUXILIARY PRESSURE SOURCES**
**#450** $CO_2$ Pressure Bomb Filler Unit (Model A only). Unit replaces Filler Cap; tightening punctures $CO_2$ bulb and pressurizes sprayer. . . . . **$3.65**
**#455** $CO_2$ Refill Bulbs, Carton of 10 . . . . . **$1.75**
**#275** Hand Air Pump. For use with Model A and Model C units. Threaded base screws on Filler Cap. Manual pumping sufficient air pressure. . . . . **$3.95**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

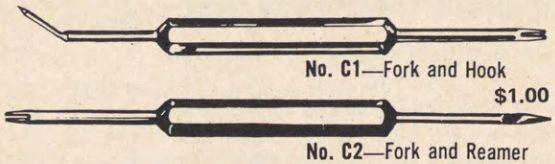
# ASSEMBLY ACCESSORIES



**AUTOMATIC PUNCH**—Adjustable for heavy or light impressions and can be fitted with four different points for riveting or burnishing screws. It is also perfect for spotting metals, plastics. Can also be used for staking rivets and nuts. Complete with cup points unless otherwise specified.
**PN-215**—Automatic Punch with Cup Point .....Comp. **$4.50**

**SEPARATE POINTS ONLY**

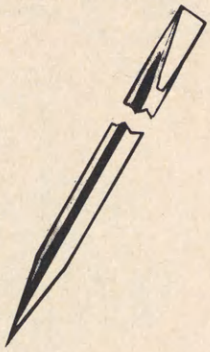
**PN-215/A**—Knock out point ea. **$1.00** **PN-215/C**—Pointed Point ..ea. **$1.00**
**PN-215/B**—Cup Point .....ea. **1.00** **PN-215/D**—Flat Point .....ea. **1.00**



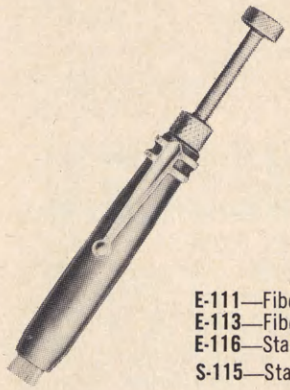
**No. C1**—Fork and Hook **$1.00**

**No. C2**—Fork and Reamer **$1.00**

**MICRO-SOLDERING AIDS FOR SUB-MINIATURE WORK**—Very small size for sub-miniature work in the electronic field. Small and delicate. Overall length, 6 inches; hex handle size, ¼ x 3"; blade size, ⅛ x 1½". Non-magnetic blades permanently set in plastic—no roll hex shaped handles.

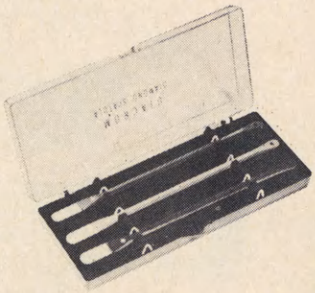


**NYLON LEAD FORMING TOOL**—Designed to be used for forming component leads before placement on printed circuit boards and for bending extended leads flat on the circuit pads without nicking or marring. One end formed like a pencil point for radius forming leads, the other screwdriver shaped to be used in pressing leads down to circuit pad after insertion and trimming. 8 inches long, ¼ inch diameter. **#51FN. . . . . .$1.10**



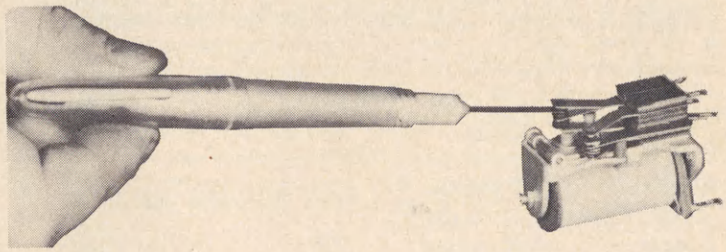
**ADJUSTABLE BRUSH** — FIBERGLASS OR STAINLESS STEEL DESIGNED FOR VARIETY OF INDUSTRIAL APPLICATIONS — When brush is retracted, enough protrudes to provide a stiff cleaning action and when fully extended a soft brushing action. Handy pocket model.

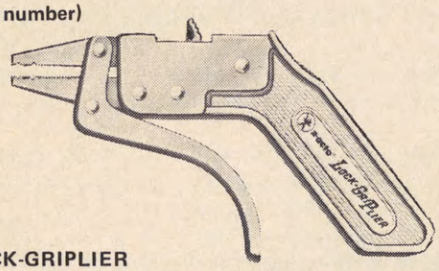
**E-111**—Fiber Glass ..... **$ 1.90**
**E-113**—Fiber Glass Refills (25) ..... **4.25**
**E-116**—Stainless Steel ..... **2.25**
**S-115**—Stainless Steel Refills (25) ..... **14.00**



**DIACRON 1-PC. DIAMOND SPATULA**—Tremendous abrasive power of diamond dust coating allows clear, smooth cleaning of contacts with minimum pressure. Abrades less than one micron. Flexible nylon (dielectric) handle is non-clogging, long-lasting. 1" x ¼" face.
#200 coarse—2 faces (for industrial relays)
#300 medium—2 faces (for telephone relays)
#400 fine—1 face (for sensitive relays)
Set of 3 in plastic case (ass't) ..... **$14.95**
**$4.95 ea.**
**$55.80 per doz. (one number)**

**CLEANER AND BURNISHER (POCKET TYPE)** Handy pocket clip. Non-residual contact burnisher leaves no grit or dust on contact. Insulation permits working on live contacts.

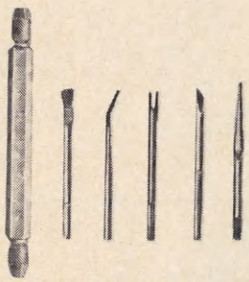





**NO. 800 X-ACTO LOCK-GRIPLIER**
Patented multi-purpose tool serves as plier, wrench, vise, crimper, tweezer, stripper, wire cutter. A "third hand" for small assemblies, for grasping and positioning small objects. . . . . .**$3.50**

**P-6** Pen with (12) 3/16" x 1¾" x .007" RB6 Blades . . . .**$3.90 ea.**
**P-4** Pen with (12) 1/4" x 1¼" x .007" RB4 Blades . . . . . **.3.90 ea.**
Replacement Blades package of 25. . . . . **$3.75 per package**

**STAINLESS STEEL RULES**
**#301mm** 6" x 1/4" rule with depth gage pocket clip. 16ths and millimeters. . . . . **.$.25 ea.**
**#300** 6" x ½" rule with depth gage pocket clip. Quick-reading 32nds and 64ths. BACK: Decimal Equivalents. . . . . **.$.50 ea.**

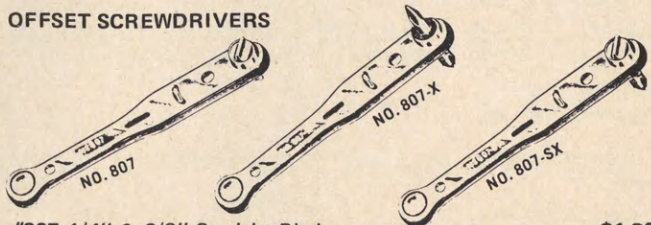


**#348 SOLDERING AID KIT** Contains five tools and a universal, double-chuck handle. Solder will not adhere to hard chrome-plated steel tools. . . . . .**$3.00**

**Individual pieces for Soldering Aid Kit:**

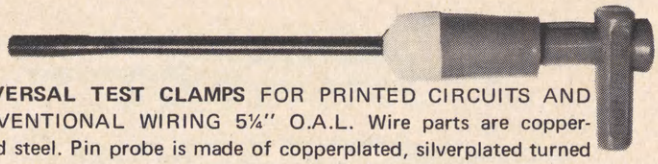
**#348a** Fork. . . . . .**$.40** **#348d** Reamer . . . . . .**$ .40**
**#348b** Knife & Scraper . . . **.50** **#348e** Brush . . . . . **.60**
**#348c** Tracer. . . . . **.40** **#348h** Handle . . . . . **.1.00**

**OFFSET SCREWDRIVERS**



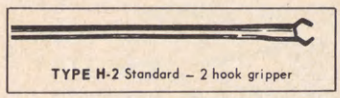

**#807** 1/4" & 3/8" Straight Blades . . . . . .**$1.20**
**#807-X** #1 & #2 Blades . . . . . **.1.70**
**#807-SX** Straight & Phillips Blades . . . . . **.1.70**

# ASSEMBLY ACCESSORIES - PROBES

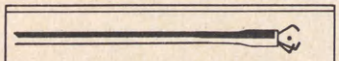


**UNIVERSAL TEST CLAMPS** FOR PRINTED CIRCUITS AND CONVENTIONAL WIRING 5¼" O.A.L. Wire parts are copper-plated steel. Pin probe is made of copperplated, silverplated turned brass. High impact polypropylene head and spring receptacle. Insulating materials PVC hose. Completely flexible under light pressure. The head contains a standard banana jack. Comes in Red, Black and Green.

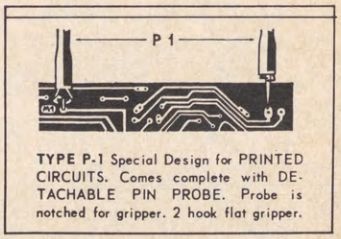
| | | |
|---|---|---|
| **H3 or H2** | **1–9 $2.10 ea.** | **10–99 $1.60 ea.** |
| **P-1** | **1–9 $2.35 ea.** | **10–99 $1.85 ea.** |



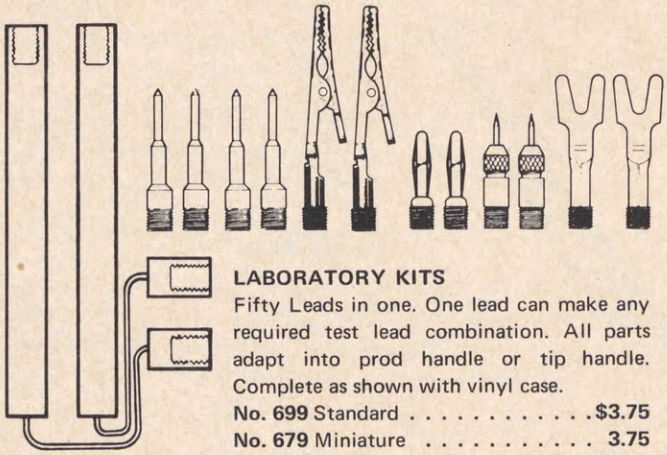
**TYPE H-2** Standard – 2 hook gripper



**TYPE H-3** Special – 3 hook gripper Will not loosen when twisted or under vibration.

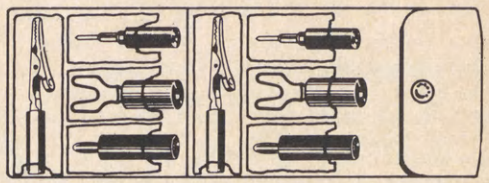



**TYPE P-1** Special Design for PRINTED CIRCUITS. Comes complete with DETACHABLE PIN PROBE. Probe is notched for gripper. 2 hook flat gripper.



**LABORATORY KITS**
Fifty Leads in one. One lead can make any required test lead combination. All parts adapt into prod handle or tip handle. Complete as shown with vinyl case.

**No. 699** Standard . . . . . **$3.75**
**No. 679** Miniature . . . . . **3.75**



**TEST KIT**
Consists of one red and one black of the following in vinyl case: Phone tip, Spade lug, Tip plug adapter, Alligator clip jack. All parts interchangeable. Converts any standard test lead.

**No. 640** . . . . . **$3.50**

**SPYRALINE SOLDER ALLOYS**
Spyraline is designed for fast accurate soldering, Plastic case acts as insulation. Sealed-in protection from contamination from all sources. Completely eliminates waste and annoying entanglements. The solder pack is the purest virgin metal alloys. Color-coded to identify contents. Solder is held rigidly in place and never drops back.

**ACID CORE (LEAK PROOF CONSTRUCTION)** for general purpose work, sheet metal, stainless steel, etc.

**ENERGIZED ROSIN** provides the ideal catalyst for a rapid bite.

**WATER WHITE ROSIN** to meet special requirements.

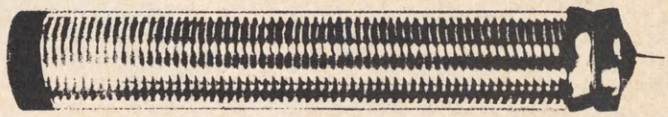
**SOLID WIRE** for use with special fluxes.

**Stock Sizes** .050, .062 inches.

**#238**
All sizes . . . . . **$1.00 ea.**
Dozen . . . . . **.90 ea.**

**ALL OTHERS**
Size .050 . . . . . **.$.75 ea.**
Dozen . . . . . **.65 ea.**

Size .062 . . . . . **.$.85 ea.**
Dozen . . . . . **.75 ea.**



**60% TIN/40% LEAD STANDARD SOLDER ALLOY**

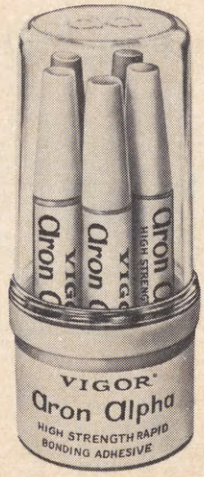
**60% TIN TO 40% LEAD – STANDARD SOLDER ALLOY** For electronic and general purpose soldering. Melting point 370°F.

**63% TIN TO 37% LEAD – TRUE EUTECTIC ALLOY** For critical soldering operations requiring the most exacting standards of precision. Melting point 361°F. . . . . .

**#238 LOW TEMPERATURE SOLDER** Minimizes chance of heat damage to critical circuit components. Melting point 248°F, 332°F.

## ARON ALPHA

Aron Alpha is an entirely new type of adhesive which is completely different from conventional adhesives now in use. It is unique for its speed and strength in the bonding of almost all kinds of materials. It requires neither solvents, catalysts nor treatment. It sets rapidly within a minimum of time ranging from seconds to minutes.

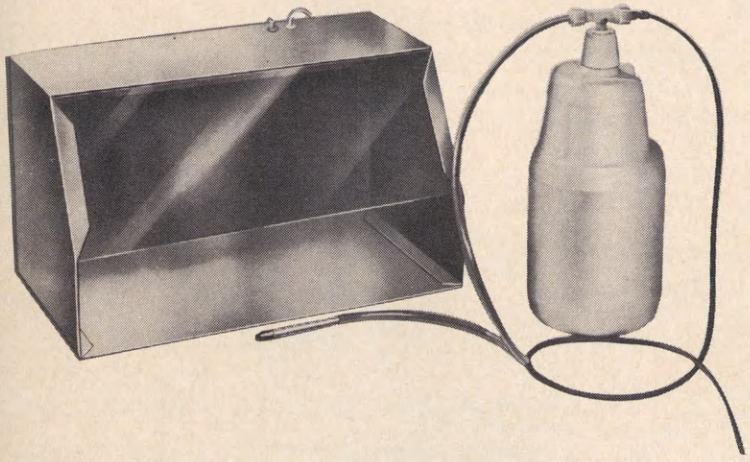



| Type "A" 45-60 sec. acting time | | Type "B" 10-20 sec. acting time | |
|---|---|---|---|
| **A475** Five 2 Gr. tubes. . | **$ 8.00** | **B490** 20 Gr. tube . . . . . | **10.00** |
| **B480** Five 2 Gr. tubes. . . . | **.8.00** | **A495** 500 Gr. tube . . . . | **125.00** |
| **A485** 20 Gr. tube . . . . . | **10.00** | **B500** 500 Gr. tube . . . . | **125.00** |



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ASSEMBLY ACCESSORIES



## ABRASIVE CLEANING PENCIL

DEBURR DEOXIDIZE
ETCH CLEAN PRINTED CIRCUITS AND DIES

Blast clean your most intricate and complex products with a pencil size gun no more cumbersome than your ball point pen. Can be employed for wet or dry applications. A foot valve permits on/off operation. The steel cabinet eliminates environmental contamination without difficulty. Operating pressure 60-90 psi. Air consumption less than one (1.0) scfm (continuous). Package contains pick-up assembly including canister, pencil and required hoses, plus cabinet with light, vacuum system, foot valve, and pressure regulator with gage. 10" H, 14" W, 10" D. . . . **$295.00 complete**

LPS 1
Lubricates Penetrates Stops Rust Displaces Water
THE GREASELESS CU
LPS 2
Rust Inhibitor Lubricant Penetrant Displaces Water
PROTECTS ALL METAL FOR ONE YEAR OR MORE
LPS 3
Extra Duty Rust Inhibitor Lubricant Displaces Water
PROTECTS ALL METAL TWO YEARS OR MORE

## LPS METAL PROTECTOR

LPS PRODUCTS CONFORM TO FEDERAL MIL SPECS C-23411 AND/OR C-16173D.

LPS IS HARMLESS TO PAINT, PLASTICS, RUBBER, FABRICS AND FINISHES.

**LPS Regular #1** forms a fine .0001 inch non-greasy, non-sticky transparent film that displaces moisture, lubricates, penetrates and protects all sheltered metals from rust and corrosion for a year or more. Outdoor protection for lesser periods. Specific gravity of approximately 800. Has a flash point (T.O.C.) of 155°F. 22% non-volatiles. Viscosity at 72°F is approximately 27. Pour point is approximately 100°F. Boiling point is approximately 300°F.

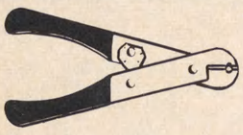
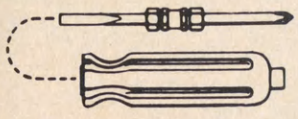
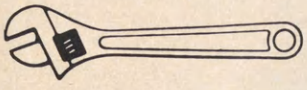
2 oz. Trial Size . . . . . **$ 1.00 ea.**
12 oz. Aerosol . . . . . **1.75 ea.**
Case of 12 . . . . . **21.00**

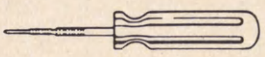
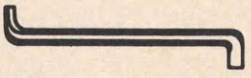
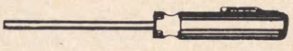
**LPS #2** forms a thin, .0001 inch transparent, oily film that displaces moisture and protects all sheltered metals from rust and corrosion for a year or more. Outdoor protection up to one year. Use where heavier coating is needed. Has a flash point (T.O.C.) of 145°. 30% non-volatiles. Viscosity at 100°F is approximately 35. Pour point is approximately 35°F.

16 oz. Aerosol . . . . . **$ 2.75 ea.**
Case of 12 . . . . . **33.00**

**LPS #3** forms a .0002 transparent, soft, waxy film that protects all metals from rust and corrosion for two years or more under severe outdoor unsheltered conditions. Recommended for protection against severe salt, moisture and acid or chemical fumes indoors or outdoors. Has a flash point (T.O.C.) of 155°. 40% non-volatiles. Viscosity at 100°F is approximately 48. Pour point is 0°F.

16 oz. Aerosol . . . . . **$ 2.75 ea.**
Case of 12 . . . . . **33.00**

| | |
|---|---|
|  | **WS-150** Wire stripper cuts and strips wire sizes 12 to 24 gauge with unique adjusting dial. . **$1.50** |
|  | **DU-11** Three Way Tool contains 3/16" regular and No. 1 Phillips blade plus ¼" nut driver. . **$2.00** |
|  | **7704** Midget Adjustable Wrench, size 4". . . . . **$3.50** |
| | **9601** Midget Adjustable Offset Plier, size 5". . . . . **$3.95** |

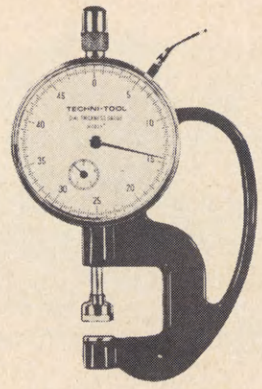
| | |
|---|---|
| **TT-31** 3-in-1 Tapping Tool taps 3 sizes of holes to 10-32, 8-32, 6-32. In FREE pouch.. . . . **$2.50** |  |
| **VO-1** 5/32" x 3" Midget Offset Driver. . . . . **$.65** |  |
| **AN-2** High Frequency Tester and Pocket Screw Driver. . . . **$1.25** |  |
| **P-12** No. 0 Phillips Pocket Type Driver.. . . . . **$.90** | |
| **A116-2** 3/32" x 3" Pocket Type Instrument Driver. . . . **$.50** | |

# ASSEMBLY ACCESSORIES

## DIAL MICROMETER

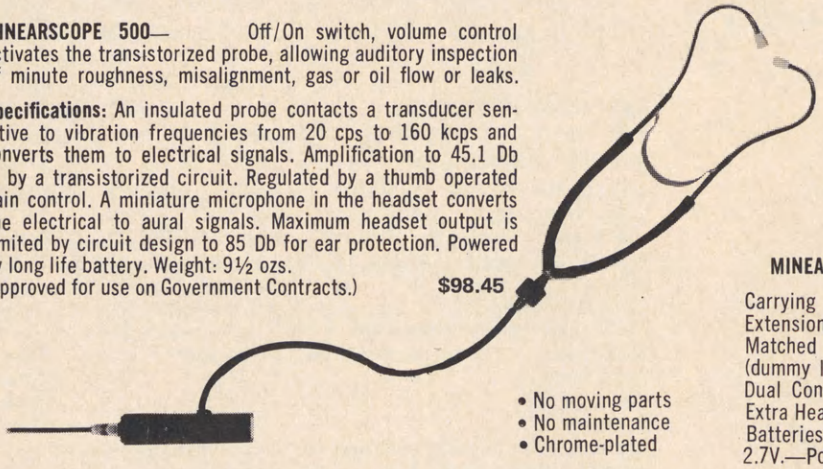
A highly precise professional instrument featuring an extremely readable 1" adjustable dial face. Calibration is accomplished by moving the face ring. Capacity on all models is ½". Excellent for rapid and accurate gauging of wire and flat materials. In fitted hardwood case.

**DM–1** .00025 inch increments . . . . . **$19.95**
**DM–2** .001 mm. increments . . . . . **19.95**
**DM–3** Inch Scale. This model comes supplied with Teflon coated jaws. It's acid resistant and non–marring. Excellent for production line gauging of semi–conductor wafers. **$24.95**




**MINEARSCOPE 500**— Off/On switch, volume control activates the transistorized probe, allowing auditory inspection of minute roughness, misalignment, gas or oil flow or leaks.

**Specifications:** An insulated probe contacts a transducer sensitive to vibration frequencies from 20 cps to 160 kcps and converts them to electrical signals. Amplification to 45.1 Db is by a transistorized circuit. Regulated by a thumb operated gain control. A miniature microphone in the headset converts the electrical to aural signals. Maximum headset output is limited by circuit design to 85 Db for ear protection. Powered by long life battery. Weight: 9½ ozs.
(Approved for use on Government Contracts.) **$98.45**



- No moving parts
- No maintenance
- Chrome-plated

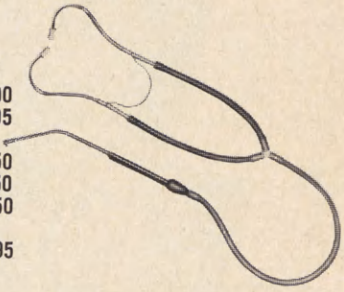
**MINEAR LEAKSCOPE DETECTOR**—For off-contact detection of gas and air leaks.

The detector is simplicity itself to use! A specially designed, slender probe is placed on or near suspect area. Air or gas turbulence is amplified thus enabling small leaks to be easily located. Eliminates the need for soap or oil . . . eliminates burnt fingers when testing hot machinery.

**Model 100** . . . . . **$22.95**

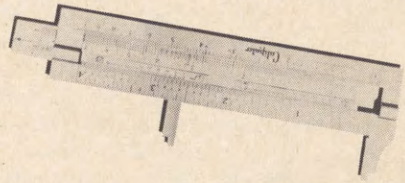
**MINEARSCOPE 500 ACCESSORIES:**

| | |
|---|---|
| Carrying Case | $ 8.00 |
| Extension Probe (fine) | 3.95 |
| Matched Impedance Unit (dummy load for 'scopes) | 21.50 |
| Dual Connector | 16.50 |
| Extra Headset | 28.50 |
| Batteries (each) 2.7V.—Polarized | 1.95 |

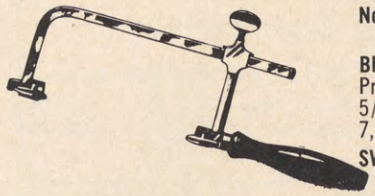


**DUAL RANGE PUSH-PULL FORCE GAUGE** Reads both 2-16 ozs. and 1-14 lbs. Measures compression, friction, tension and force. Weight 2 ozs., with low friction slides and permanently engraved scale. Easy-grip aluminum handle with threaded interchangeable adapters. Constant zero position independent of gauge position.
**Model 75** Complete with 2 adapters . . . . . **$40.00**

**CALIPUTER**—The new Caliputer is a combined slide rule and vernier caliper that provides direct readings instantly. Measures in inches and 1/1000 of an inch in depth, inside and outside, C & D scale is on face of instrument with B scale and circumference readings on back. . . . . **$7.25**

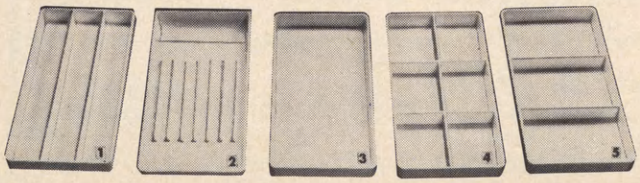


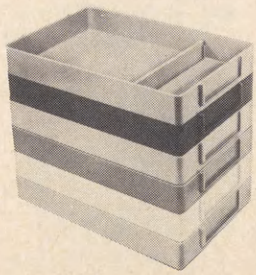
**#74 "I.C." LEAD PULL TEST ADAPTER** Used for establishing optimum settings on reflow solder and welding machines. Also for quality control tests of assembled integrated circuits ("I.C.'s"). Has non-magnetic and stainless steel construction.
**$10.00**
**Other adapters available on request.**



**SAW FRAME AND BLADES**—SAW FRAME —Constructed of polished steel for sturdy service.
**No. 1078**—Saw Frame . . . . ea. **$5.00**
6 rate . . . . . ea. **$4.75**
**BLADES**—Uniform teeth, curved backs. Precision made. Sizes: 8/0, 7/0, 6/0, 5/0, 4/0, 3/0, 2/0, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14.
**SW-630**—State Size:
**$5.00** /gr.— **$.50** /doz.
Packed dz. to pkg. Gross can be assorted in dozens.

**INSTRUMENT TRAYS** Five styles to choose from, and ruggedly designed of durable white plastic. Easily cleaned. Specify styles.
Specify No. desired . . . . . **$2.95**
Can assort (1 dozen) . . . . . **$28.50**



**HIGH-IMPACT JOB TRAYS—TR-160** — Simple, uniform method for organizing work by color. Large (6" x 9" x 1½") trays are self-nesting with removable partition and label holder at each end.
PACKAGE OF 40 (Same Color) . . . . . **$30.00**
6 (Assorted) . . . . . **$ 6.50**
Colors available: Red, green, yellow, blue, brown, black. Please specify.

# XCELITE BERYLLIUM COPPER TOOLS

## BERYLLIUM-COPPER HAND TOOLS AND SETS

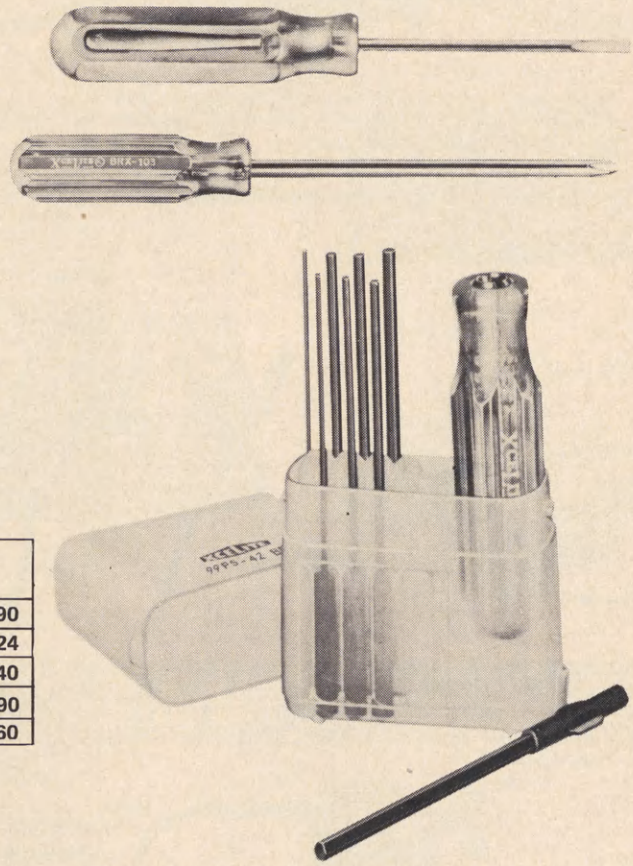
Beryllium-copper used in the manufacture of the Xcelite precision tools, non-sparking, rust and corrosion resistant. Nearly as hard as steel, it has a higher fatigue resistance. Recommended for numerous applications in electrical and electronic assembly and servicing, these tools are particularly desirable where magnetism is a detterent to adjustment. Because they are non-sparking, they are regarded as safety tools. They are rust and corrosion resistant and may be exposed to moisture, salt air, weather, chemicals, or chemical fumes.

### FIXED HANDLE SCREWDRIVERS
### SCREWDRIVERS FOR SLOTTED SCREWS

| CATALOG NO. | BLADE DIAM. | BLADE LENGTH | HANDLE DIMS. | OVERALL LENGTH | |
|---|---|---|---|---|---|
| | | POCKET CLIP STYLE | | | |
| BR-181 | 1/8" Dia. Blades | 2" | 1/2" x 2 1/4" | 4 1/4" | $ .65 |
| | | REGULAR | | | |
| BR-184 | 1/8" Dia. | 4" | 3/4" x 2 5/8" | 6 5/8" | 1.20 |
| BR-186 | Blades | 6" | 3/4" x 2 5/8" | 8 5/8" | 1.24 |
| BR-1810 | | 10" | 3/4" x 2 5/8" | 12 5/8" | 1.44 |
| BR-3164 | 3/16" Dia. | 4" | 7/8" x 3 5/8" | 7 5/8" | 1.80 |
| BR-3168 | Blades | 8" | 7/8" x 3 5 /8" | 11 5/8" | 2.40 |
| BR-144 | 1/4" Dia. | 4" | 1 1/16" x 4 1/8" | 8 1/8" | 2.20 |
| BR-146 | Blades | 6" | 1 1/16" x 4 1/8" | 10 1/8" | 2.64 |
| BR-148 | | 8" | 1 1/16" x 4 1/8" | 12 1/8" | 2.88 |

### PHILLIPS TYPE SCREWDRIVERS

| CATALOG NO. | POINT SIZE | BLADE DIAMETER | BLADE LENGTH | HANDLE DIMS. | OVERALL LENGTH | |
|---|---|---|---|---|---|---|
| BRX-100 | 0 | 1/8" | 2" | 3/4" x 2 1/2" | 4 1/2" | .90 |
| BRX-101 | 1 | 3/16" | 3" | 7/8" x 3 5/8" | 6 5/8" | 2.24 |
| BRX-102 | 2 | 1/4" | 4" | 1" x 3 7/8" | 7 7/8" | 2.40 |
| BRX-103 | 3 | 5/16" | 6" | 1 1/16" x 4 1/4" | 10 1/4" | 4.90 |
| BRX-104 | 4 | 3/8" | 8" | 1 3/8" x 4 1/2" | 12 1/2" | 6.60 |



### ALLEN HEX TYPE SCREWDRIVERS

Beryllium blades locked in stainless steel handle inserts.

| CATALOG NO. | HEX SIZE | BLADE LENGTH | HANDLE DIMS. | OVERALL LENGTH | PRICE |
|---|---|---|---|---|---|
| BRLN-20 | .050" | 4" | 3¼" x 2 5/8" | 6 5/8" | $1.40 |
| BRLN-21 | 1/16" | 4" | 3/4" x 2 5/8" | 6 5/8" | 1.40 |
| BRLN-22 | 5/64" | 4" | 3/4" x 2 5/8" | 6 5/8" | 1.40 |
| BRLN-23 | 3/32" | 4" | 1" x 3 1/8" | 7 1/8" | 1.40 |
| BRLN-764 | 7/64" | 4" | 1" x 3 1/8" | 7 1/8" | 1.60 |
| BRLN-24 | 1/8" | 4" | 1" x 3 1/8" | 7 1/8" | 1.60 |
| BRLN-964 | 9/64" | 4" | 1" x 3 1/8" | 7 1/8" | 1.80 |
| BRLN-25 | 5/32" | 4" | 1" x 3 1/8" | 7 1/8" | 1.80 |
| BRLN-26 | 3/16" | 4" | 1" x 3 7/8" | 7 1/8" | 2.00 |

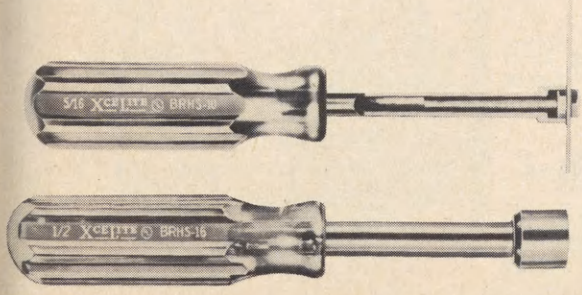
**BRLN-990** Complete set of above in roll-up, plastic-coated, canvas case. **15.00**

### 99-PS-42-BR ALLEN HEX TYPE SCREWDRIVER SET

This compact, ten-piece interchangeable blade set is furnished in a sturdy, pocket-size plastic case which has a flat bottom for use as a bench stand. Handle, 1 1/16" x 4 1/8", is fitted with a brass spring chuck which holds the blades firmly for driving, yet permits easy insertion and removal. Nine beryllium copper blades with integral stainless steel chuck adaptors, have a 4" approximate working length and are furnished in the following hex sizes: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32" and 3/16". **13.80**

### HOLLOW SHAFT NUTDRIVERS

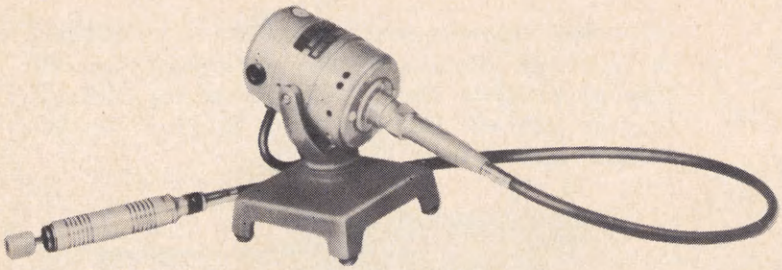
These general purpose nutdrivers are especially useful where nuts must be installed or removed over long protruding bolts or studs. Shafts are brass with beryllium copper sockets.



| CATALOG NO. | HEX OPENING | SHAFT LENGTH | DEPTH OF HOLE | HANDLE DIMS. | OVERALL LENGTH | PRICE |
|---|---|---|---|---|---|---|
| BRHS-6 | 3/16" | 3 1/8" | 5 1/2" | 1" x 3 1/8" | 6 1/4" | $3.20 |
| BRHS-8 | 1/4" | 3 1/8" | 4 3/8" | 1" x 3 7/8" | 7" | 3.20 |
| BRHS-10 | 5/16" | 3 1/8" | 4 3/8" | 1" x 3 7/8" | 7" | 3.40 |
| BRHS-11 | 11/32" | 3 1/8" | 4 3/8" | 1" x 3 7/8" | 7" | 3.50 |
| BRHS-12 | 3/8" | 3 1/8" | 4 3/8" | 1" x 3 7/8" | 7" | 3.80 |
| BRHS-14 | 7/16" | 3 1/8" | 6" | 1 1/16" x 4 1/8" | 7 1/4" | 4.50 |
| BRHS-16 | 1/2" | 3 1/8" | 6" | 1 1/16" x 4 1/8" | 7 1/4" | 5.00 |
| **BRHS-6-16** Set of above in clear front plastic case . . . . . | | | | | | 27.80 |

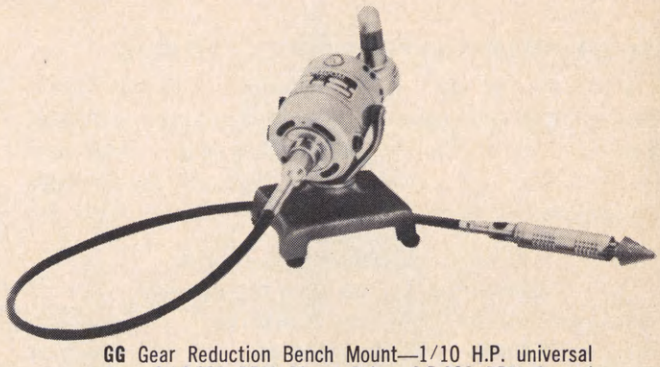
# DEBURRING AND GRINDING TOOLS - FOREDOM

**QUANTITY DISCOUNTS:** 1 - 3 Net 4 - 9 10% 10 + 20%



**SERIES DD** Direct Drive Bench Mount. 1/10 H.P. Speed range 0-14,000 RPM. 36" flexible shaft. Supplies with #30 Handpiece—ball bearing with keyed chuck 5/32" capacity. Rheostat and 3 prong plug included. ..... **$77.00**

**Other models available to your specifications upon request. Write for information.**



**GG** Gear Reduction Bench Mount—1/10 H.P. universal motor. 0-14,000 RPM Direct Drive. 0-5,000 RPM Geared Drive. 37" flexible shaft. Supplies with #30 Handpiece—ball bearing with keyed chuck 5/32" capacity and Rheostat—3 prong plug included. ..... **$90.00**

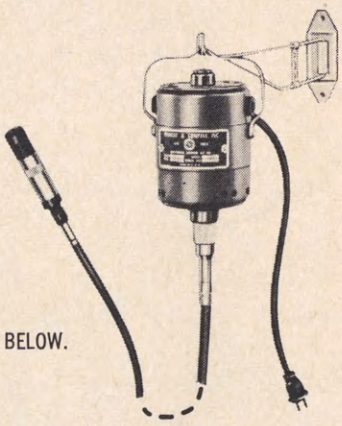
**MODEL CH MOTOR**

WITH HANDPIECE:

**CH-330** ..... **$69.00**
**CH-88** ..... **59.00**

ALL COMPLETE WITH HANDPIECE SHOWN BELOW.

Shown with CH-330 handpiece

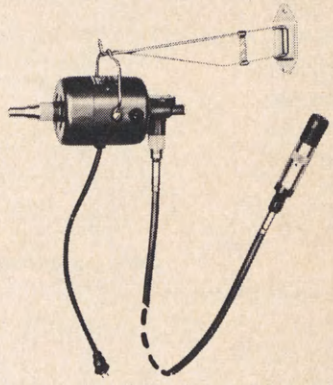


**MODEL CHG MOTOR**

WITH HANDPIECE:

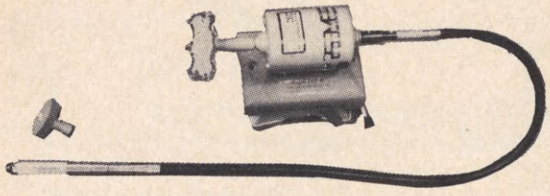
**CHG-330** ..... **$71.00**
**CHG-88** ..... **65.00**

Shown with CH-330 handpiece



**CABLE-SHAFT HANGING MOTORS**—Precision-built for requirements of electronics industry. 1/10 H.P. universal motor with 39" shaft. 14,000 R.P.M. idling speed. Range with rheostat is 2,000 to 14,000 R.P.M. Available with choice of handpiece shown below. Prices include motor, handpiece, rheostat and hanging bracket.

**GEAR REDUCTION HANGING MOTORS**—Two-way motor allows slower high speed grinding without loss of torque. Rheostat control at direct drive end yields 2,000 to 14,000 R.P.M. 1,000 to 5,000 R.P.M. at geared end. Quick change. 1/10 H.P. universal motor, 39" shaft excellent (at slow speeds) for grinding molds and dies. Available with choice of handpieces shown below. Prices include motor, handpiece, rheostat and hanging bracket.



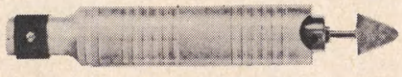
**MINIATURE BENCH GRINDER**

Height to shaft center is 3 3/18". This grinder comes complete with aluminum-oxide grinding stone (Part No. 10072) and cotton buff (Part No. CB-1) on a tapered spindle. Accessories Availalbe: Arbor with collet chuck MC-1, Flexade Flexible Shaft.

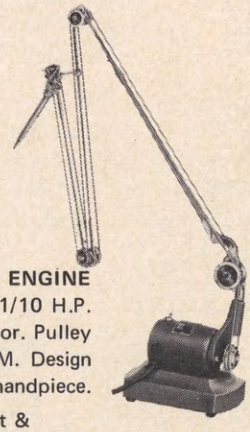
**SPECIFICATIONS:**
1/15 HP universal motor
Speed range with rheostat:
0—14,000 RPM

**2A5** (w/flexade) ..... **$44.25**
**4T** (w/flexade and vacuum base) ..... **59.00**

**SEND FOR BULLETIN PSD-1**

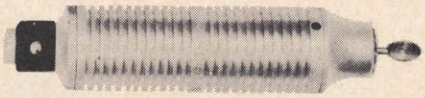


**#330** Heavy duty handpiece with 5/32" adjustable chuck and grease sealed ball bearings. **$20.00**



**ALL-CORD TYPE ENGINE**
Reversible unit has 1/10 H.P. universal 2-step motor. Pulley speed is 15,000 RPM. Design assures power at handpiece.

**CHR-1** With rheostat & ball-bearing handpiece.
**$170.00**



**#335** Speed increasing mechanism produces up to 35,000 r.p.m.'s. With 1/8" collet. **$35.00**

**#88** Handpiece with 3/32" collet-type chuck and precision bronze bearings. Available with flex spring (#88D). **$15.00**

**MINIATURE POWER SCREWDRIVER**
It has adjustable torque control and vacuum pick-up. A new concept for powerdriving small screws and nuts from #000 to #4.



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

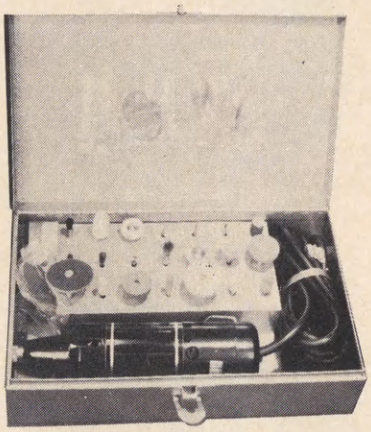
# DEBURRING AND GRINDING TOOLS - PNEUMATIC

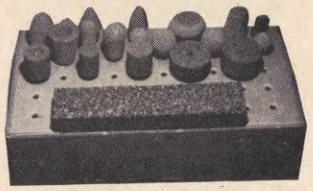
**HANDEE® SERIES 6000**

- 25,000 R.P.M., for super-efficient grinding, cutting, carving, drilling, sanding, sawing, engraving, polishing, cleaning, burnishing, gunsmithing.
- Hi-Torque Handee engineering incorporates every modern principle of motor design . . . simplified construction reduces maintenance . . . new, larger oilite bearings insure longer life.
- All-new precision chuck simplifies accessory change. Convenient size and shape, plus perfect balance permits hand precision control of tool.
- Cool running . . . new, larger air vents top and bottom permit air velocity to insure cool operation.
- By actual field test in industrial application, Handee 6000 outperforms all previous models in same size range 5.
- Weighs only 14 oz.

**No. 6000** (110-volt)
**HANDEE® GRINDER**
only **$28.85**

**No. 6010** (110-volt) Handee Grinder (shown) with 45 all-purpose accessories and steel case. (Subject to availability.) Accessories include: steel cutters (for non-ferrous metals, wood, plastics), cleaning brushes, abrasive mounted wheels (for hardened steel, non-ferrous metals, glass, ceramics), drills, buffing and polishing wheels, drum sander, cut-off discs, dressing stone, polishing compound . . . . . **$39.85**





**No. 6525**
20⅛" Shank Wheels and Dressing Stone . . . . **$14.50**

**No. 3041**
12 ⅛" Steel Cutters.
**$12.00**

**DRILL PRESS** 15 to 1 leverage and has a thumb screw adjustment. Adjustable depth stop, permits you to rout or drill repeatedly to a predetermined depth. Spring return tension. Adjustable depth gauge dial, shows depth of hole being drilled. Square base with slots for bolting work to base. Rack and pinion gear feed. **(Not shown)**
No. 945 . . . . . **$23.50**

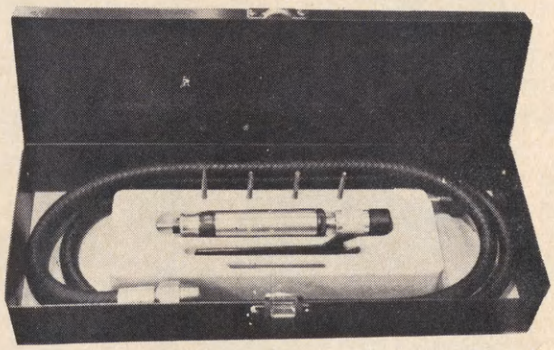
**BENCH HOLDER** Screw base to bench to give Handee rigid mounting. Can also be held vertically in bench vise. Either method will allow both hands free for work. Tool can easily be removed from holder. **(Not shown)**
**No. 945** . . . . . **$5.50**

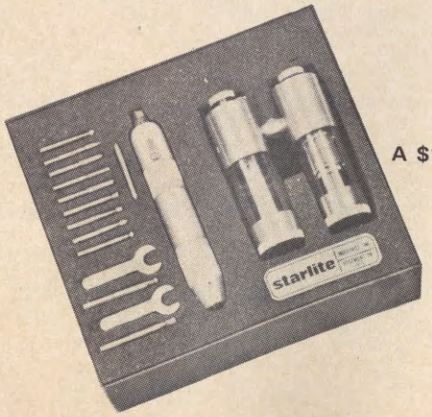
**FOOT SPEED CONTROL** range between 300 and 25,000 r.p.m. **(Not shown)**
**No. 3002** – 110 volt . . . . . **$11.00**

**COLLETS**
**3024** 3/32". . . . .**1.00**
**3023** 1/16". . . .**$1.00**
**3025** 1/8". . . . . **1.00**

**K-200GM MIDGET DIE GRINDERS** High speed rotary vane airmotor operates under very heavy loads without stalling. 60,000 RPM. The perfect tool for tool and die shops and drilling P.C. boards. High power (1/12 H.P.) and speed enables unit to drill or deburr rapidly. Supplied with sleeve or lever throttle. Unit is muffled for operator comfort. Supplied with 1/8" and 3/32" collets; two mounted points, oilers, chuck pin and wrench and 5 ft. air hose with couplings. Attractive leatherette case.

**K-200GM** sleeve . . . . . **$90.00**
**K-200GML** lever . . . . . **$100.00**
**K-301GM-GML** Same as above but 32,000 RPM and 1/6 H.P.
**K-301GM** sleeve . . . . . **$90.00**
**K-301GML** lever . . . . . **$100.00**



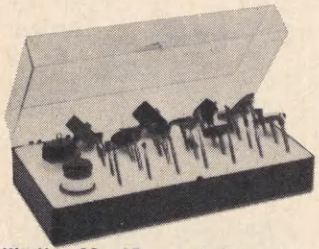



**A $120.00 Value**

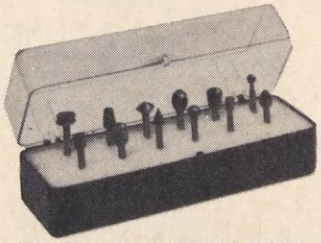
**K-100 STARLITE KIT**
Starlite's "Tyna-Mite" Grinder puts 100,000 RPM ready for a vast variety of hand-finishing operations on hardened metals, alloys, and plastics. Only 5¾" long, 7/8" diameter, and weighs less than 6 ounces. Additional Collet AG-100CA-3/32" enables you to use a wide variety of Diamonds and Carbides for a wide variety of jobs.
Kit contains: Model AG100 "Tyna-Mite" Air Grinder, 1/8" Collet, Filter-Lube and Hose, 10 Shapes of 1/8" shank. Starbide Midget Series 550 Solid Carbide Burs Starlite Mounted Diamond Cylinder No. 154, 1/8" diameter shank. Starlite Mounted Diamond Ball Shape No. 184, 1/8" diameter shank. . . . . **$99.00**

# FOREDOM ACCESSORY KITS

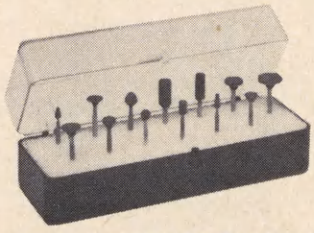
Careful selection of shapes, cuts, abrasive grits and bonds, grades and shank sizes has enabled Techni-Tool to offer the widest variety of accessories at minimum cost. All Techni-Tool Kits come in attractive, re-usable plastic boxes.



**Kit No. 20**—35 assorted accessories including steel cutters and burs, mounted points, wire and bristle brushes, rubber bonded abrasive wheels, sanding, etc. 3/32″ shanks. Something for almost any job in any type of material.
3/32″ Shanks . . . . . **$9.75**

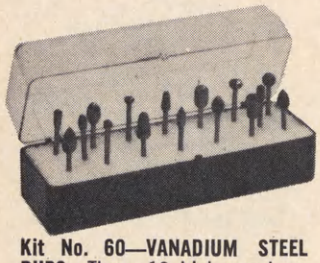


**Kit No. 30—VANADIUM STEEL CUTTERS**—These 12 high-speed vanadium steel cutters are suitable for use on all materials except hardened steel and glass. ⅛″ shanks. **$10.50**



**Kit No. 40—MOUNTED ABRASIVE POINTS** — 13 Silicon Carbide (green color) mounted points for low-tensile brittle or "smeary" type materials like aluminum, brass. Also for stainless steel, glass, gemstones. 3/32″ shanks. **$5.95**

**Kit No. 50—MOUNTED ABRASIVE POINTS** — 13 Aluminum Oxide (red color) mounted points for fast cutting on high tensile, tough materials such as steel, malleable iron, etc. Also used on porcelain, glass, etc. 3/32″ shanks. **$4.50**



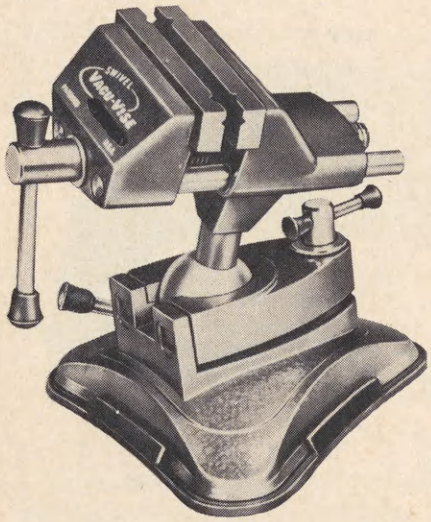
**Kit No. 60—VANADIUM STEEL BURS**—These 16 high-speed vanadium steel burs can be used on all materials except hardened steel and glass. 3/32″ shanks. **$8.95**

**Kit No. 70**—14 assorted mounted brushes including steel and brass wire and bristle in 3 different styles. 3/32″ shanks. **$5.25**

**Kit No. 80—MOUNTED ABRASIVE POINTS** — 9 Aluminum Oxide, heavy duty mounted points for rough work on high tensile materials like steel, malleable iron, etc. ⅛″ shanks . . . . . **$5.75**

**Kit No. 120**—Unmounted rubber bonded abrasives for polishing, removing rust, etc. Offered in 3 grits: Coarse (green), Medium (brown), Fine (reddish-brown). 72 piece kit shown on left includes all shapes, sizes and grits with mandrels M1 and M3. **$5.95**

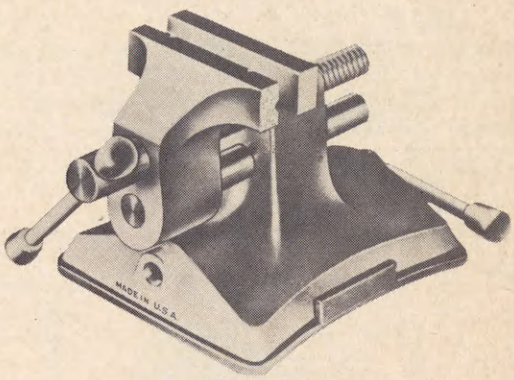
## PORTABLE VACU-VISES
### NO SCREWS OR CLAMPS




**#1850 MULTI-ANGLE SWIVEL-ACTION VISE** Swivels 360° and tilts 90° to desired angle. 3″ metal jaws open to 2 5/8 inches. Equipped with slide-on rubber jaws for fragile work. 6¼″ triangular base. 6¼″ O.A.L. . . . . **$15.95**

The VACU VISE needs no screws or clamps. It attaches instantly with "super-vacuum" power. Holds to almost any smooth surface. . . . . **$6.95 ea.**

Chrome plate die cast model for clean room use . . . . . **$9.95 ea.**
Slide on rubber jaws for the Vacu Vise . . . . . **$1.00 ea. set**




**DIMENSIONS:**
**No. 1805 3 5/8 x 2¾ x 1 5/16**
**No. 1803 2¾ x 2¼ x 1 3/8**

**MULTI-USE VACU BASE** — Just a flick of the Vacu-Lever and it fastens firmly to any smooth non-porous surface. Lift the Vacu-Lever, and the VACU BASE is released. VACU BASE gives complete portability to any fixture, instrument or appliance that is attached to it. Extra material provided for hole and threaded mounting on top and sides. There are thousands of industrial and commercial applications for VACU BASE.
**VACU BASE #1803** . . . . . **$3.00**
**VACU BASE #1805** . . . . . **$5.00**

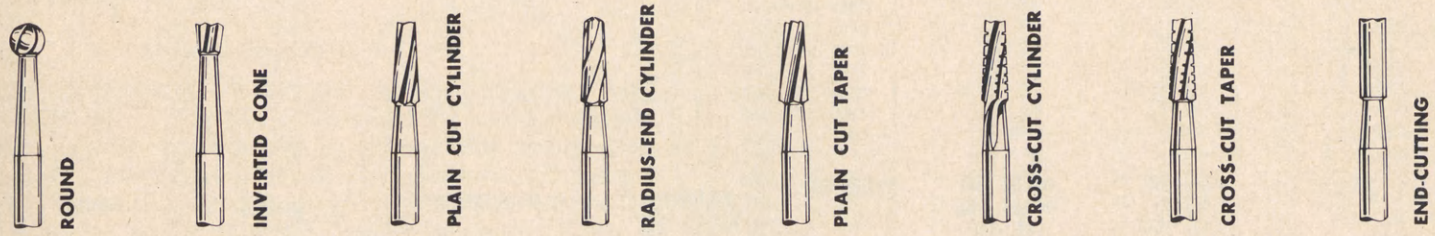


**ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA**

# GRINDING BURS, CARBIDE

**TECHNI-TOOL** IS NOW OFFERING A COMPREHENSIVE LINE OF DEBURRING AND ACCESSORIES. CAREFUL RESEARCH AND CONSIDERATION OF THE RESULTS HAVE INDICATED THE MOST POPULAR SIZES AND SHAPES FOR THE MOST FLEXIBLE INDUSTRIAL APPLICATION. PLEASE FEEL FREE TO CALL US FOR INFORMATION.

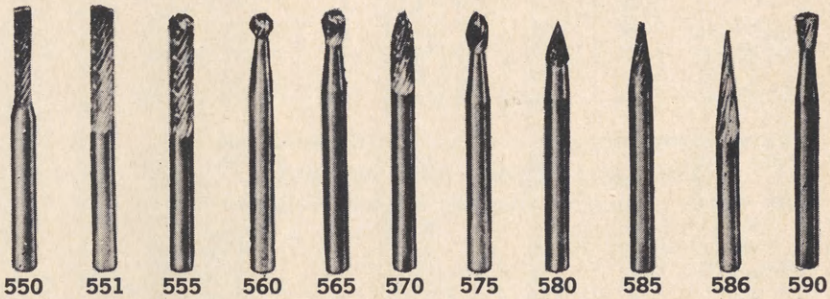
**3/32" SHAFT** Also available 1/16" shank for high speed airotors and latch type for angle handpieces.




| NO. | HEAD DIAM. | HEAD LENGTH | PRICES, EACH 1 to 11 | 12 to 24 | 25 or more |
|---|---|---|---|---|---|
| **ROUNDS** | | | | | |
| 1/2 | .025 | .025 | $1.50 | $1.40 | $1.35 |
| 1 | .032 | .032 | 1.50 | 1.40 | 1.35 |
| 2 | .039 | .039 | 1.50 | 1.40 | 1.35 |
| 3 | .047 | .047 | 1.50 | 1.40 | 1.35 |
| 4 | .055 | .055 | 1.50 | 1.40 | 1.35 |
| 5 | .063 | .063 | 1.50 | 1.40 | 1.35 |
| 6 | .072 | .072 | 1.50 | 1.40 | 1.35 |
| 7 | .081 | .081 | 1.50 | 1.40 | 1.35 |
| 8 | .090 | .090 | 1.50 | 1.40 | 1.35 |
| **INVERTED CONES** | | | | | |
| 33½ | .025 | .040 | $1.50 | $1.40 | $1.35 |
| 34 | .032 | .040 | 1.50 | 1.40 | 1.35 |
| 35 | .039 | .040 | 1.50 | 1.40 | 1.35 |
| 36 | .047 | .040 | 1.50 | 1.40 | 1.35 |
| 37 | .055 | .050 | 1.50 | 1.40 | 1.35 |
| 38 | .063 | .050 | 1.50 | 1.40 | 1.35 |
| **PLAIN CUT CYLINDERS** | | | | | |
| 57 | .032 | 1/8 | $2.10 | $2.00 | $1.85 |
| 58 | .039 | 1/8 | 2.10 | 2.00 | 1.85 |
| 57L | .039 | 3/16 | 2.10 | 2.00 | 1.85 |
| 58L | .047 | 1/4 | 2.10 | 2.00 | 1.85 |
| **RADIUS-END CYLINDER** | | | | | |
| 57R | .032 | 1/8 | $2.10 | $2.00 | $1.85 |
| 58R | .039 | 1/8 | 2.10 | 2.00 | 1.85 |

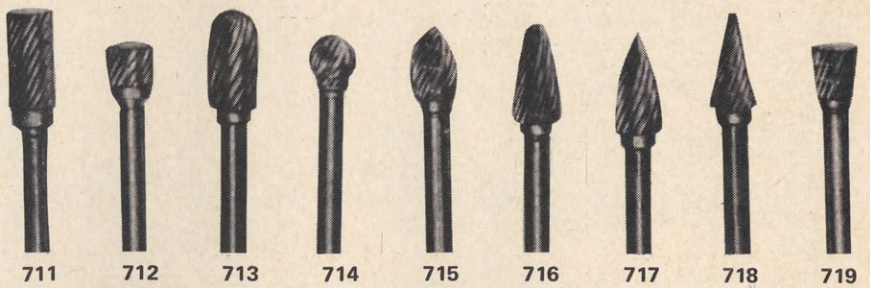
| NO. | HEAD DIAM. | HEAD LENGTH | PRICES, EACH 1 to 11 | 12 to 24 | 25 or more |
|---|---|---|---|---|---|
| 557R | .032 | 1/8 | $2.10 | $2.00 | $1.85 |
| 558R | .039 | 1/8 | 2.10 | 2.00 | 1.85 |
| **PLAIN CUT TAPERS** | | | | | |
| 169 | .020-.045 | 1/8 | $2.10 | $2.00 | $1.85 |
| 170 | .025-.050 | 1/8 | 2.10 | 2.00 | 1.85 |
| 171 | .025-.055 | 1/8 | 2.10 | 2.00 | 1.85 |
| 171L | .025-.055 | 3/16 | 2.10 | 2.00 | 1.85 |
| **CROSS-CUT CYLINDERS** | | | | | |
| 557 | .032 | 1/8 | $2.10 | $2.00 | $1.85 |
| 558 | .039 | 1/8 | 2.10 | 2.00 | 1.85 |
| 559 | .047 | 1/8 | 2.10 | 2.00 | 1.85 |
| 557L | .039 | 3/16 | 2.10 | 2.00 | 1.85 |
| 558L | .047 | 1/4 | 2.10 | 2.00 | 1.85 |
| **CROSS-CUT TAPERS** | | | | | |
| 699 | .020-.045 | 1/8 | $2.10 | $2.00 | $1.85 |
| 700 | .025-.050 | 1/8 | 2.10 | 2.00 | 1.85 |
| 701 | .025-.055 | 1/8 | 2.10 | 2.00 | 1.85 |
| 702 | .045-.065 | 1/8 | 2.10 | 2.00 | 1.85 |
| 701L | .025-.050 | 3/16 | 2.10 | 2.00 | 1.85 |
| **END-CUTTING** | | | | | |
| 957 | .032 | 1/8 | $2.10 | $2.00 | $1.85 |
| 958 | .039 | 1/8 | 2.10 | 2.00 | 1.85 |
| 959 | .047 | 1/8 | 2.10 | 2.00 | 1.85 |

**SERIES 550 MIDGET SOLID CARBIDE 1/8" Shank.** Solid carbide, including cutting head, neck, and shank. All burs are end cut. Super-finished cutting edges. May be reground. **$2.50 ea.**

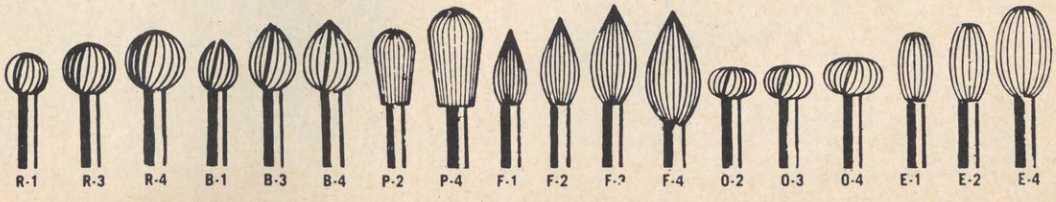



**MIDGET SERIES 700—Carbide—⅛" Steel Shank—** Solid Carbide from cutting head to neck. Steel Shanks. Numbers 712 and 719 are end cut. Super-finished cutting edges. May be reground.

**711, 712, 719 . . . . . $5.90**
**714, 718 . . . . . 6.30**
**713, 717 . . . . . 6.90**
**715, 715 . . . . . 7.10**



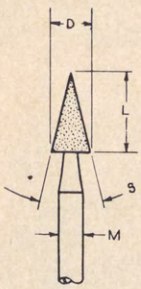

**VANADIUM STEEL CUTTERS 3/32" shanks.** For roughing and removing material rapidly. Ample chip clearance. Illustrations approximately full size. **$1.00 ea.**



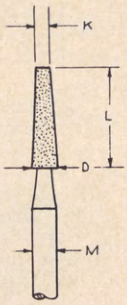

ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# MOUNTED DIAMOND POINTS AND WHEELS

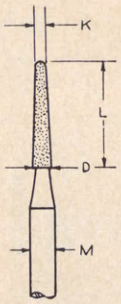
**QUANTITY DISCOUNTS:** 1 to 11 Net 12 to 48 10% 48 or more 15%



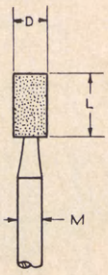

CONES



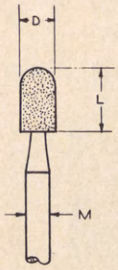

FLAT END TAPERS 143, 144



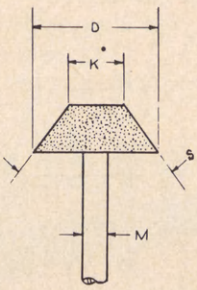

ROUND END TAPERS 140, 141, 142




CYLINDERS

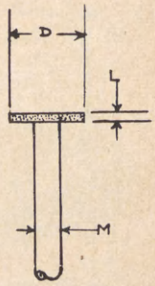



CYLINDERS ROUND END




COUNTERSINKS

ROUNDS




WHEELS

## CYLINDERS – MOUNTED

| Starlite Part Number | Size In Inches: Head Diam. D | Head Length L | Shank Diam. M | O.A.L. | Net Price |
|---|---|---|---|---|---|
| 148 | .030 | 3/16 | 1/8,1/4 | 2 | $ 8.50 |
| 149 | .040 | 3/16 | 1/8,1/4 | 2 | 8.10 |
| 150 | 3/64 | 3/16 | 1/8,1/4 | 2 | 7.55 |
| 151 | 1/16 | 1/4 | 1/8,1/4 | 2 | 8.50 |
| 152 | 5/64 | 1/4 | 1/8,1/4 | 2 | 8.90 |
| 153 | 3/32 | 1/4 | 1/8,1/4 | 2 | 9.20 |
| 154 | 1/8 | 1/4 | 1/8,1/4 | 2 | 9.90 |
| 154A | 5/32 | 5/16 | 1/8,1/4 | 2 | 11.00 |
| 154L | 5/32 | 1/4 | 1/8,1/4 | 3 | 12.30 |
| 155 | 3/16 | 5/16 | 1/8,1/4 | 2 | 12.45 |
| 155A | 7/32 | 5/16 | 1/8,1/4 | 2 | 13.15 |
| 156 | 1/4 | 5/16 | 1/8,1/4 | 2 | 14.15 |
| 156A | 9/32 | 5/16 | 1/8,1/4 | 2 | 15.10 |
| 157 | 5/16 | 5/16 | 1/8,1/4 | 2 | 15.95 |
| 157L | 5/16 | 5/16 | 1/8,1/4 | 3 | 17.30 |
| 158 | 3/8 | 5/16 | 1/8,1/4 | 2 | 17.75 |
| 159 | 1/2 | 5/16 | 1/8,1/4 | 2 | 21.25 |
| 159L | 1/2 | 5/16 | 1/8,1/4 | 3 | 22.55 |

## CYLINDERS, ROUND END, MOUNTED

| | | | | | |
|---|---|---|---|---|---|
| 161 | 1/16 | 1/4 | 1/8 | 2 | $ 9.00 |
| 162 | 5/64 | 1/4 | 1/8 | 2 | 9.20 |
| 163 | 3/32 | 1/4 | 1/8 | 2 | 9.60 |
| 164 | 1/8 | 1/4 | 1/8 | 2 | 10.65 |
| 165 | 3/16 | 5/16 | 1/8 | 2 | 13.15 |
| 166 | 1/4 | 5/16 | 1/8 | 2 | 14.85 |
| 167 | 5/16 | 5/16 | 1/8 | 2 | 16.70 |
| 168 | 3/8 | 5/16 | 1/8,1/4 | 2 | 18.85 |
| 169 | 1/2 | 5/16 | 1/8,1/4 | 2 | 22.35 |

*120 Grit is standard.

325 Grit is available on request at no extra charge by adding "F" to Part Number.

## CONES – MOUNTED

| Part No. | Size In Inches: Base Diam. D | Angle S | Cone Length L | Shank Diam. D | O.A.L. | Net Price |
|---|---|---|---|---|---|---|
| 130 | 11/64 | 60° | 5/32 | 1/8 | 2 | 7.85 |
| 131 | 5/32 | 35° | 1/4 | 1/8 | 2 | 7.85 |
| 132 | 3/16 | 26° | 13/32 | 1/8 | 2 | 9.20 |

## ROUNDS – MOUNTED

| Starlite Part Number | Size In Inches: Head Diam. D | Head Length L | Shank Diam. M | O.A.L. | Net Price |
|---|---|---|---|---|---|
| 180 | 3/64 | | 1/8 | 2 | $ 8.20 |
| 181 | 1/16 | | 1/8 | 2 | 8.20 |
| 182 | 5/64 | | 1/8 | 2 | 8.20 |
| 183 | 3/32 | | 1/8 | 2 | 8.50 |
| 184 | 1/8 | | 1/8 | 2 | 8.95 |
| 185 | 3/16 | | 1/8 | 2 | 9.20 |
| 186 | 1/4 | | 1/8 | 2 | 9.90 |
| 187 | 5/16 | | 1/8 | 2 | 10.65 |
| 188 | 3/8 | | 1/8 | 2 | 11.35 |
| 189 | 1/2 | | 1/4 | 2 | 18.45 |
| 190 | 3/4 | | 1/4 | 2 | 29.05 |

## WHEELS – MOUNTED

| | | | | | |
|---|---|---|---|---|---|
| 225 | 1/4 | 1/32 | 1/8 | 1-7/8 | 7.85 |
| 226 | 1/4 | 3/64 | 1/8 | 1-7/8 | 8.20 |
| 227 | 1/4 | 1/16 | 1/8 | 1-7/8 | 8.50 |
| 228 | 1/4 | 3/32 | 1/8 | 1-7/8 | 9.20 |
| 229 | 1/4 | 1/8 | 1/8 | 1-7/8 | 9.90 |

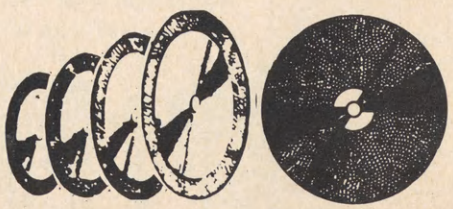
## TAPERS – MOUNTED

| Part No. | Size In Inches: Small Diam. K | Large Diam. D | Head Length L | Angle S | Shank Diam. M | O.A.L. | Net Price |
|---|---|---|---|---|---|---|---|
| 140 | .044 | .066 | 5/16 | 4° | 1/8 | 2 | 7.85 |
| 141 | .060 | .082 | 5/16 | 4° | 1/8 | 2 | 8.50 |
| 142 | .078 | .110 | 5/16 | 6° | 1/8 | 2 | 9.20 |
| 143 | .106 | .138 | 5/16 | 6° | 1/8 | 2 | 9.90 |
| 144 | .134 | .166 | 5/16 | 6° | 1/8 | 2 | 10.65 |

## COUNTER SINKS – MOUNTED

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 171 | 3/16 | | 5/16 | 82° | 1/8 | 1-7/8 | 16.30 |
| 172 | 1/4 | | 5/16 | 82° | 1/4 | 1-7/8 | 22.25 |
| 173 | 1/2 | | 1/4 | 82° | 1/4 | 1-7/8 | 31.85 |
| 174 | 3/4 | | 1/4 | 82° | 1/2 | 1-7/8 | 42.90 |

*Grit: 120 IS STANDARD IN MOUNTED TOOLS SHOWN ABOVE



81, 82, 83, 84, 88

### DIAMOND DISKS

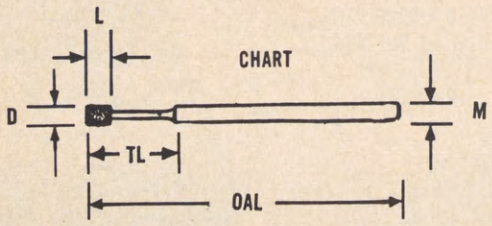
$6.50 ea.

| NO. | DIAM. |
|---|---|
| 81 | 0.625' |
| 82 | 0.750" |
| 83 | 0.875" |
| 84 | 1.00" |
| 88 | 1.00" |



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# MOUNTED DIAMOND POINTS AND WHEELS

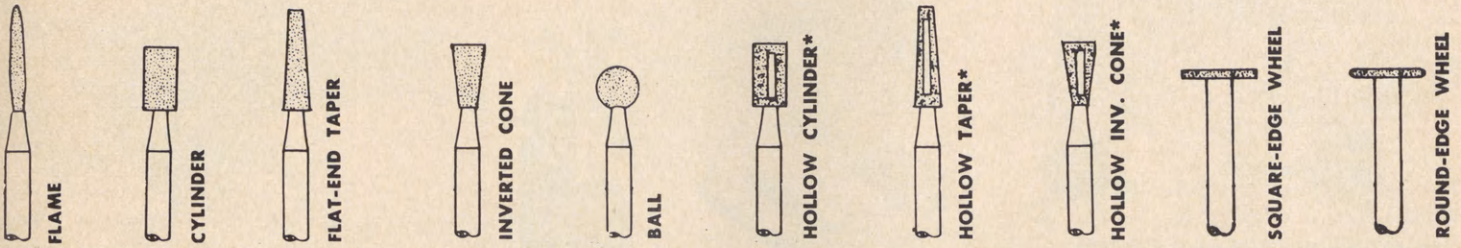



**STARLITE MOUNTED POINTS**—For carbide, hardened steel, ceramics, etc. . . . a new series of Starlite mounted diamond points, specially developed for jig grinding. With smaller diameters than ever before—down to .025". Exclusive 150 diamond concentration plus extremely tough metal bond permits the use of a shallow coat of diamonds required for precision-sizing of tools. Neck is relieved and has longer length for deep hole grinding. Their low initial cost and long useful life make them economical for many grinding applications. Write for information on finer grits and for cylinders with deeper diamond-impregnation.

| Part No. | Head Diam. D | Head Length L | Neck Length NL | Shank Diam. M | O.A.L. | Grits | Net Price |
|---|---|---|---|---|---|---|---|
| 250 | .025 | 1/8 | 1/8 | 1/8 | 2 1/2 | 180 | $4.90 |
| 251 | .035 | 3/16 | 1/8 | 1/8 | 2 1/2 | 150 | 4.90 |
| 252 | .045 | 3/16 | 1/8 | 1/8 | 2 1/2 | 150 | 4.10 |
| 253 | .055 | 3/16 | 3/16 | 1/8 | 2 1/2 | 120 | 3.80 |
| 254 | .065 | 1/4 | 3/16 | 1/8 | 2 1/2 | 120 | 4.10 |
| 255 | .075 | 1/4 | 3/16 | 1/8 | 2 1/2 | 120 | 4.40 |
| 256 | .085 | 1/4 | 3/16 | 1/8 | 2 1/2 | 120 | 4.80 |
| 257 | .095 | 1/4 | 3/4 | 1/8 | 2 1/2 | 120 | 5.10 |
| 258 | .105 | 1/4 | 25/32 | 1/8 | 2 1/2 | 120 | 5.40 |
| 259 | .115 | 1/4 | 25/32 | 1/8 | 2 1/2 | 120 | 5.70 |
| 260 | .125 | 1/4 | 7/8 | 1/8 | 2 1/2 | 120 | 6.00 |
| 261 | .135 | 1/4 | 15/16 | 1/8 | 2 1/2 | 120 | 6.30 |
| 262 | .165 | 5/16 | 1 | 1/8 | 2 1/2 | 120 | 6.90 |
| 263 | .215 | 5/16 | 1 | 1/4 | 3 1/2 | 120 | 7.40 |
| 264 | .255 | 5/16 | 1 | 1/4 | 3 1/2 | 120 | 7.90 |

**SHANKS**—Special heat-treated alloy possessing extreme rigidity and strength. For maximum tool life and better work finish, use these tools "wet."

***Specify Type**




| NO. | HEAD DIAM. | HEAD LENGTH | 1 to 5 |
|---|---|---|---|
| **FLAME** | | | |
| 210-10 | .015-.085 | .394 | $5.50 |
| 260-4 | .020-.045 | .157 | 5.50 |
| 260-8 | .020-.045 | .316 | 5.50 |
| 265-8 | .015-.050 | .316 | 5.50 |
| 270-7 | .015-.065 | .277 | 5.50 |
| 280-9 | .015-.088 | .394 | 5.50 |
| 280-10 | .015-.088 | .394 | 5.50 |
| 285-7 | .010-.100 | .277 | 5.50 |
| 290-9 | .048-.088 | .355 | 5.50 |
| **CYLINDERS** | | | |
| 556-4 | .040 | .157 | $5.50 |
| 556-5 | .040 | .198 | 5.50 |
| 556-7 | .040 | .277 | 5.50 |
| 557-4 | .045 | .157 | 5.50 |
| 557-5 | .045 | .198 | 5.50 |
| 557-7 | .045 | .277 | 5.50 |
| 558-7 | .050 | .277 | 5.50 |
| 559-7 | .060 | .277 | 5.50 |
| 560-7 | .070 | .277 | 5.50 |

| NO. | HEAD DIAM. | HEAD LENGTH | 1 to 5 |
|---|---|---|---|
| **FLAT-END TAPERS** | | | |
| 699-9 | .020-.056 | .355 | $5.50 |
| 700-7 | .030-.057 | .277 | 5.50 |
| 700-9 | .030-.065 | .355 | 5.50 |
| 700-12 | .030-.078 | .473 | 5.50 |
| 701-7 | .040-.062 | .277 | 5.50 |
| 701-9 | .040-.068 | .355 | 5.50 |
| 701-10 | .040-.071 | .394 | 5.50 |
| 702-7 | .050-.070 | .277 | 5.50 |
| 702-9 | .050-.078 | .355 | 5.50 |
| 702-12 | .050-.087 | .473 | 5.50 |
| 704-2 | .070-.093 | .078 | 5.50 |
| 704-3 | .070-.093 | .118 | 5.50 |
| **HOLLOW TAPERS** | | | |
| C1X | .060-.080 | .250 | $8.00 |
| C2 | .080-.102 | .281 | 8.00 |
| C3 | .065-.100 | .150 | 8.00 |
| **HOLLOW INVERTED CONES** | | | |
| C7 | .090-.065 | .125 | $8.00 |

| NO. | HEAD DIAM. | HEAD LENGTH | 1 to 5 |
|---|---|---|---|
| C8M | .080-.055 | .250 | 8.00 |
| C8 | .105-.070 | .250 | 8.00 |
| 771-9 | .040-.068 | .355 | $5.50 |
| 771-12 | .040-.077 | .473 | 5.50 |
| 772-9 | .050-.078 | .355 | 5.50 |
| 772-12 | .050-.078 | .473 | 5.50 |
| **INVERTED CONES** | | | |
| AP-1 | .080-.040 | .040 | $5.50 |
| AP-3 | .110-.055 | .060 | 5.50 |
| D-36 | .050-.040 | .040 | 5.50 |
| D-37 | .055-.040 | .065 | 5.50 |
| D-38 | .065-.050 | .065 | 5.50 |
| 7X | .078-.060 | .070 | 5.50 |
| 7 | .100-.076 | .070 | 5.50 |
| T-1 | .068-.036 | .100 | 5.50 |
| **BALL** | | | |
| D3P | .050 | .050 | $5.50 |
| D4P | .060 | .060 | 5.50 |

| NO. | HEAD DIAM. | HEAD LENGTH | 1 to 5 |
|---|---|---|---|
| D7P | .100 | .100 | 5.50 |
| **HOLLOW CYLINDERS** | | | |
| C27 | .065 | .187 | $8.00 |
| C25X | .075 | .250 | 8.00 |
| C25 | .090 | .281 | 8.00 |
| C26 | .105 | .281 | 8.00 |
| **SQUARE-EDGE WHEELS** | | | |
| 34 | .167 | .020 | $6.50 |
| 35 | .255 | .025 | 6.50 |
| 35T | .275 | .025 | 6.50 |
| **ROUND-EDGE WHEELS** | | | |
| 110S | .135 | .050 | $6.50 |
| 110 | .175 | .050 | 6.50 |
| 111 | .225 | .085 | 6.50 |

***These Diamonds are Hollow, and are specially engineered to distribute water lubrication through slots on their sides.**

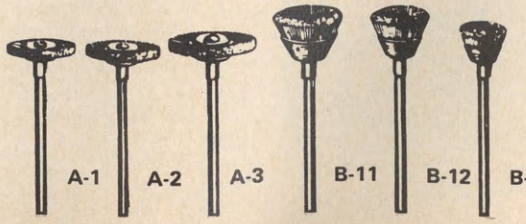
**CIRCULAR SAW #7**—.005 in thickness, 7/8" diameter, complete with 3/32" mandrel for mounting. Pkg. of 6. **$5.25**

**WIRE SCRATCH BRUSH #9**—All stainless steel mounted on 3/32" shank, 1" diameter. **3/$2.25** **dz./$7.50**

**MOUNTED SAWS #8** — Permanently mounted on 3/32" shank. Excellent for small cutting. Available in two sizes—6 mm, 10 mm diameter. **3/$3.50**

**BRISTLE BRUSHES**

1 dozen . . . **$2.95**
1 gross . . **$22.50**
5 gross . . **95.00**
can assort in dozens



**STAINLESS STEEL PORTE POLISHER #6**—3/32" shank with stainless steel wire brush. Excellent for small finishing and polishing. **3/$2.25** **1 dz./$ 7.50**

ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ASSEMBLY ACCESSORIES

QUANTITY DISCOUNTS AVAILABLE

### FINE WIRE & RIBBON KITS

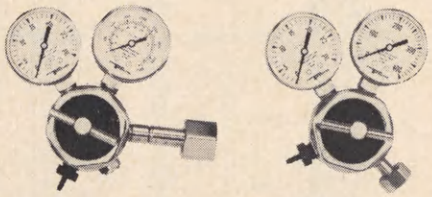
These "sample" kits are available "off-the-shelf"—without a set up charge, in handy leatherette cases. KIT No. 1 contains 9 different kinds of fine ribbon (.002 x .010), KIT No. 2 contains only pure gold wire and ribbon in 9 different sizes, and KIT No. 3 has an assortment of fine wire (.003 dia.) in 9 weldable materials. All materials are of high purity. Tolerances on .003 dia. wire are held to ± .0001 (except for the electro tinned copper wire which is ± .002). Size tolerance on the ribbon width is ± .0005 and on ribbon thickness, ± .0002. Gold plating on the Kovar is 50 millions thick over a nickel flash. All materials are "dead soft" making them ideal for miniature welding applications.

**FINE WIRE & RIBBON KITS—**
- **MINIATURE WELDING**
- **EXPERIMENTAL**
- **LAB WORK**

**KIT No. 1—FINE RIBBON ASSORTMENT**—Consists of 9 spools packed in a black leatherette case, each spool containing a different weldable material in ribbon form:
20 ft. of .002 x .010 Gold (99.999% pure)
20 ft. of .002 x .010 Platinum (99.9% pure)
20 ft. of .002 x .010 Palladium (99.9% pure)
20 ft. of .002 x .010 Silver (99.99% pure)
20 ft. of .002 x .010 Nickel (99.8% pure)
20 ft. of .002 x .010 Copper (99.9% pure)
20 ft. of .002 x .010 Aluminum (99.5% pure)
20 ft. of .002 x .010 #105 Palladium
20 ft. of .002 x .010 Gold Plated Kovar
No. 2W016022 ..... **$ 95.00** per kit

**KIT No. 2—GOLD WIRE AND RIBBON**—Consists of 9 spools in a black leatherette case, each spool carrying a different size of gold wire or gold ribbon:
15 ft. of .001 x .005 Gold (99.999% pure)
15 ft. of .0015 x .008 Gold (99.999% pure)
15 ft. of .002 x .010 Gold (99.999% pure)
15 ft. of .003 x .015 Gold (99.999% pure)
15 ft. of .004 x .020 Gold (99.999% pure)
15 ft. of .001 dia. Gold (99.999% pure)
15 ft. of .002 dia. Gold (99.999% pure)
15 ft. of .003 dia. Gold (99.999% pure)
15 ft. of .004 dia. Gold (99.999% pure)
No. 2W016023 ..... **$ 95.00** per kit

**KIT No. 3—FINE WIRE ASSORTMENT**—Consists of 9 spools in a black leatherette case, each spool containing a different weldable material in wire form, .003 diameter:
30 ft. of .003" dia. Gold (99.999% pure)
30 ft. of .003" dia. Platinum (99.9% pure)
30 ft. of .003" dia. Palladium (99.9% pure)
30 ft. of .003" dia. Silver (99.99% pure)
30 ft. of .003" dia. Nickel (99.8% pure)
30 ft. of .003" dia. Cooper (99.9% pure)
30 ft. of .003" dia. Aluminum (99.5% pure)
30 ft. of .003" dia. Nichrome5 (80%Ni, 20%Cr)
30 ft. of .003" dia. Tinned Copper
No. 2W016024 ..... **$ 95.00** per kit



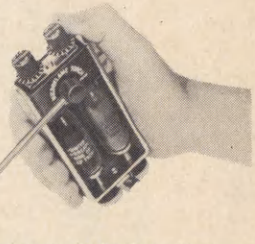
**"LITTLE TORCH" IN HANDY KIT**—The basic Little Torch kit is ideal for use in the fully equipped shop or lab. Includes aluminum alloy torch body, 5 copper tips, 6 feet of durable plastic hose, adaptors to your regulators, and complete instructions. Can be used with acetylene, LP-Gas or hydrogen. Valves, connections and hoses are all color-keyed for convenience and safety. **$75.95**

**"LITTLE TORCH" HANDY KIT WITH PRECISION REGULATORS**—Ideal for lab, or shop when fuel gas and oxygen cylinders are available from your gas supplier. Includes basic kit plus two regulators; one for oxygen, one for acetylene (LP-Gas or hydrogen regulators available). Regulators are designed to provide best Little Torch operation. **$159.95**

**COMPLETE "LITTLE TORCH" HANDY KIT AND CYLINDERS**—Consists of basic kit plus two regulators, and oxygen and acetylene cylinders. Handy carrying case included makes this Little Torch outfit highly mobile, convenient to handle. Each cylinder contains about 10 cu. ft. of gas (provides up to 435 hrs. of operation). Net wt. 30 lbs. **$289.00**

**SPECIAL REGULATORS AVAILABLE**

**"BERNZ-O-MATIC" BANTAM TORCH**—Small bench model, completely portable. Powerful flame up to 2300° F. ..... adjustable. Disposable cylinder burns up to 15 hours and can be replaced and be back in use in less than a minute. Burns in any position. Lights instantly.
**$7.50** Complete **$3.00** Replacement Cylinder



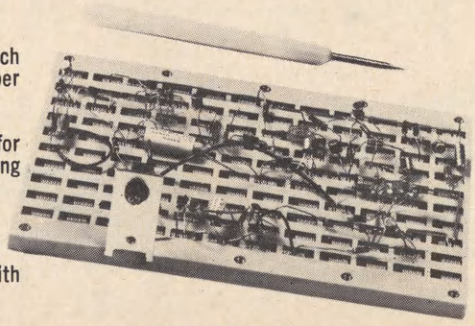
**"MICRO-FLAME" GAS WELDING TORCH**—Produces over 5000° F. pin-point, accurate flame using self-contained miniature oxygen and butane compressed gas cylinders. Easy to use for welding, brazing and soldering. FITS THE HAND!
MICRO-FLAME KIT (MODEL 1000) ..... **$19.95**
12 (or more) ..... each **16.95**
REPLACEMENTS:
Oxygen—(Cylinder) **$.75**
Butane—(Cylinder) **.65**
3 Tips **.75**
6 Cylinder Gas Kits **.75**

**INDUSTRIAL TORCH SET**—Contains a complete Model #1000 Miniature Torch Set (described above), plus industrial capacity oxygen and propane gas tanks, valves, hoses, adapters, handle/bracket, instructions.
Model 2000 ..... **$ 64.75**
12 (or more) ..... ea. **$ 51.80**
REPLACEMENT OXYGEN GAS TANK
Model No. 2006 (For Model No. 2000) ..... **$ 14.00**
REPLACEMENT PROPANE GAS TANK
Model No. 2007 (For Model 2000) ..... **$ 4.00**

### DESCRIPTIVE SPECIFICATIONS

- 120 springs
- 10 turns per spring
- Each spring accommodates nine leads
- All springs electrically isolated from each other, but several may be joined with jumper wires
- Case of high-impact plastic
- 10 threaded inserts to hold brackets for switches, pots, jacks, etc. Also for holding links
- Brackets mount either flat or upright
- Size: 4¾ x 7¼ x 5/16 approximately
- Enclosed on the bottom
- Pointed tool and one bracket included with each SPRINGBOARD

**PROTOTYPE CIRCUIT BOARD COMPONENTS CAN'T POP OUT**



| | $14.95 | $9.95 | $14.95 | $9.95 |
|---|---|---|---|---|
| MODEL NO. | 100 | 101 | 200 | 201 |
| THREADED INSERTS | 6-32 Brass | 6-32 Brass | 6-32 Stainless Steel | 6-32 Stainless Steel |
| PLASTIC | High Impact Polystyrene | High Impact Polystyrene | G. E. Lexan* | G. E. Lexan* |
| SPRINGS | Stainless Steel | Tin Plated Steel | Stainless Steel | Tin Plated Steel |
| WORKING TEMP. | −65C to +70C | −40C to +70C | −65C to +125C | −40C to +125C |
| MAX. AMPS (1) | 1 to 3 | 6 to 9 | 1 to 3 | 6 to 9 |
| LEAD-TO-LEAD RESISTANCE MILLI-OHMS (2) | 10 to 100 | 3 to 7 | 10 to 100 | 3 to 7 |
| LEAD-TO-LEAD INDUCTANCE MICRO-HENRYS (3) | 0.002 to 0.035 | 0.002 to 0.025 | 0.002 to 0.035 | 0.002 to 0.025 |

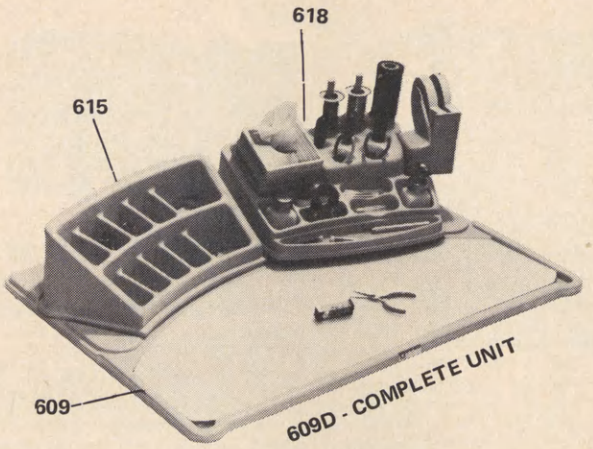
*Or similar material guaranteed to meet these specifications



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

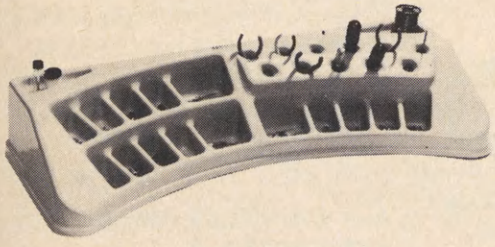
# OPTIMAN SPACE CONTROL CENTERS

**OPTI-MAN SPACE CONTROL CENTER**
Designed to increase productivity and to reduce fatigue. The uncomplicated design improves efficiency, eliminates confusion, minimizes movements, and grasps quickly. Has no cracks or corners where parts might be lost or lodged. Molded of polyethylene plastic, the center is chip and rust proof and resists acids, alkalis, paints, solvents and stains of all types. Meets industry's strictest clean room requirements. No time or motion is wasted sorting out and picking up parts and tools.

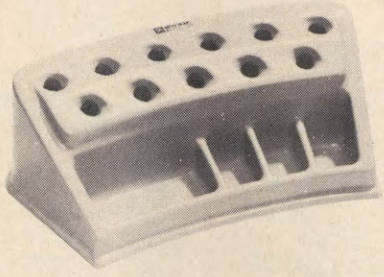



| Model No. | Unit Price |
|---|---|
| 606 | $15.95 |
| 609A (609 & 606) | 23.75 |
| 612 | 9.95 |
| 609B (609, 612 & 615) | 26.50 |
| 615 | 9.95 |
| 609C (609 & (2) 615) | 25.30 |
| 618 | 12.50 |
| 609D (609, 615 & 618) | 27.75 |
| 609 BASE TRAY | 5.30 |
| Tape Dispenser | $3.00 ea. |
| Reversible Polyfoam Surface | 9.85 ea. |
| Soldering Iron Holder | 3.00 ea. |

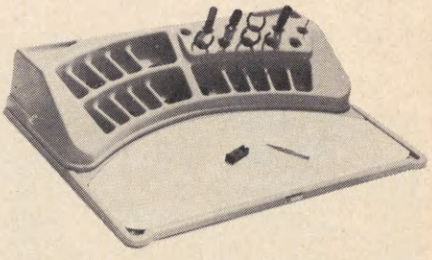
**Quantity Quotations Given Upon Request**



**MODEL 606** This unit may be placed on any bench or lab table. Size 13½" x 6½".

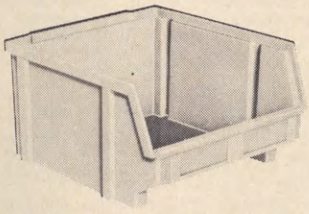


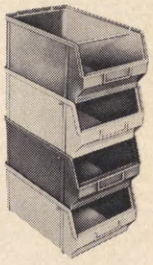
**MODEL 612** This unit is primarily designed as a tool holder. Size 10" x 19" x 5½".



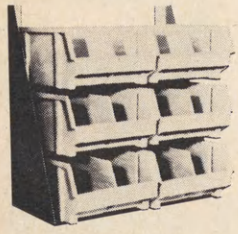
**MODEL 609A** A polyethylene work surface is included. A reversible plastic laminate and polyethylene foam work surface insert is available. Size 24" x 36" x 6½".

**PLASTIBOX STORAGE/DISPLAY BINS**
Plastibox Hopper Front Display and Storage Bins are ideal for handling small parts and products. Molded in one piece of modified polypropylene, Plastibox containers are available in a wide range of styles and sizes. Smooth, seamless surfaces provide excellent protection to delicate parts. No sharp edges or burrs to cut and bruise. Plastibox bins cannot rust or corrode and are impervious to oil, water, and most chemicals. Color: blue.
Variety of sizes and styles gives wide application flexibility. Illustrated are a few of the sizes and styles which Plastibox containers make available to you:





Rail for wall hanging 3 ft. strips . . . . . **$3.00 ea.**

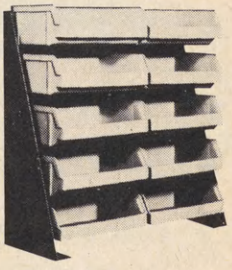


**TR6 – 6 PBC31 Plastibox Bins,** 9½" x 8¾" x 5", 6 openings. One–piece 18" x 18" x 7¼" welded rack construction, with 3 rails. Baked enamel finish – blue. **$24.90**

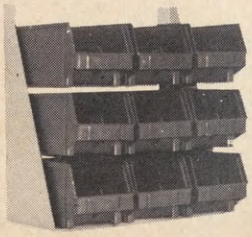
**TR6X – 6 PBC31X Plastibox Bins,** (two 3 7/8" wide compartments) 12 openings. **$26.60**

**TR10 – 10 PBC22 Plastibox Bins,** 6½" x 8¾" x 3", 10 openings. One–piece 18" x 18" x 7¼" welded rack construction with 5 rails. Baked enamel finish – blue. **$25.50**

**TR10X – 10 PBC22X Plastibox Bins,** (three 2 5/8" wide compartments) 30 openings. **$27.50**



**Other models available**

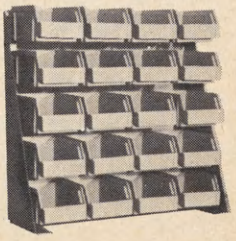


**TR9 – 9 PBX3 Plastibox Bins,** 9¾" x 5¾" x 5". 9 openings. One–piece 18" x 18" x 7¼" welded rack construction, with 3 rails. Baked enamel finish – blue. **$25.50**

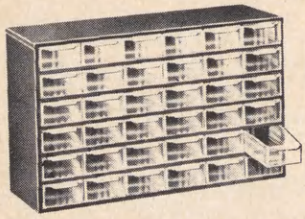
**TR9X – 9 PBC3X Plastibox Bins,** (two 2½" wide compartments) 18 openings. **$27.95**

**TR20 – 20 PBC2 Plastibox Bins,** 6¾" x 4" x 3", 20 openings. One piece 18" x 18" x 7¼" welded rack construction with 5 rails. Baked enamel finish – blue. **$29.30**

**TR20X – 20 PBC2X Plastibox Bins,** (two 1 5/8" wide compartments) 40 openings. **$31.50**



# AKRO-MILS STORAGE CABINETS



## 36 DRAWER CABINET

**COMPACT DRAWERS**

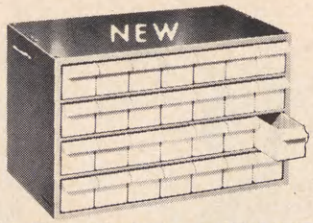
**EACH: 2-3/4"W x 5-7/8"L x 1-7/16"H**
**FRAME: 18"W x 6"D x 11-1/8"H**

Heavy-duty, all-steel frame with 36 drawers; each has 23 cubic inch capacity plus patented adjustable drawer dividers that permit crosswise, lengthwise & crisscross sub-compartments. Drawer-front index labels included.

**Model 17-136** — transparent drawers

Industrial User

**$13.49**




## 28 DRAWER CABINET

**LONG-COMPACT DRAWERS**

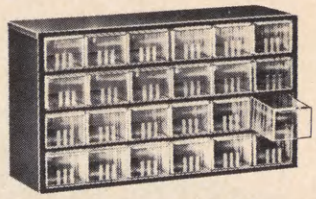
**EACH: 2¼"W x11"L x 2⅛"H**
**FRAME: 18"W x 11"D x 11"H**

Heavy-duty all-steel frame with 28 drawers, each has 44 cubic inch capacity, plus patented adjustable dividers permitting drawer sub-compartments. Drawer-front index labels included.

**Model 18-228** — heavy-duty gray drawers

Industrial User

**$22.99**



## 24 DRAWER CABINET

**DEEP-COMPACT DRAWERS**

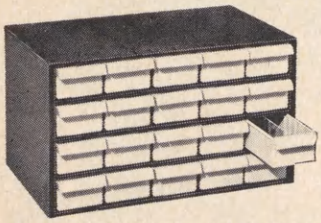
**EACH: 2¾"W x 5⅞"L x 2"H**
**FRAME: 18"W x 6"D x 9⅞"H**

Heavy-duty, all-steel frame with 24 drawers; each has 31 cubic inch capacity, plus patented adjustable drawer dividers permitting drawer sub-compartments. Drawer-front index labels are included.

**Model 17-024** — transparent drawers

Industrial User

**$13.49**



## 20 DRAWER CABINET

**LARGE DRAWERS**

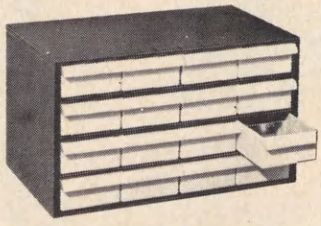
**EACH: 3⅛"W x 11"L x 2⅛"H**
**FRAME: 18"W x 11"D x 11"H**

Heavy-duty, all-steel frame with 20 large drawers; each has 66 cubic inch capacity plus patented adjustable drawer dividers and drawer-front labels.

**Model 17-320** — transparent drawers
**Model 18-320** — heavy-duty gray drawers

Industrial User

**$19.99**



## 16 DRAWER CABINET

**LARGE-WIDE DRAWERS**

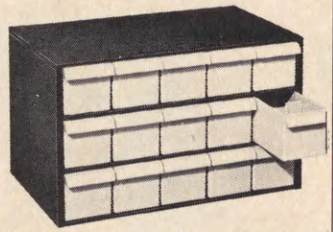
**EACH: 4"W x 11"L x 2⅛"H**
**FRAME: 18"W x 11"D x 11"H**

Heavy-duty, all-steel frame with 16 drawers; each has 88 cubic inch capacity, plus patented adjustable drawer dividers permitting drawer sub-compartments and drawer-front index labels.

**Model 17-416** — transparent drawers
**Model 18-416** — heavy-duty gray drawers

Industrial User

**$19.99**



## 15 DRAWER CABINET

**LARGE-DEEP DRAWERS**

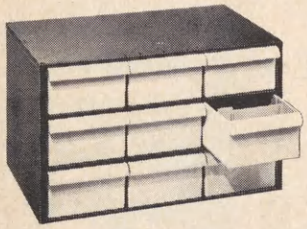
**EACH: 3-1/8"W x 11"L x 3-1/32"H**
**FRAME: 18"W x 11"D x 11"H**

Heavy-duty, all-steel frame with 15 drawers; each has 104 cubic inch capacity, plus patented adjustable drawer dividers permitting drawer sub-compartments and drawer-front indexing labels.

**Model 17-715** — transparent drawers
**Model 18-715** — heavy-duty gray drawers

Industrial User

**$19.99**



## 9 DRAWER CABINET

**JUMBO DRAWERS**

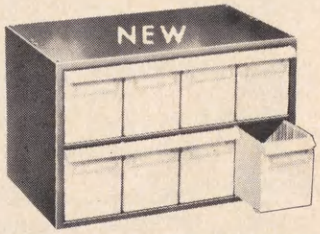
**EACH: 5-1/4"W x 11"L x 3-1/32"H**
**FRAME: 18"W x 11"D x 11"H**

Heavy-duty, all-steel frame with 9 jumbo drawers; each has 175 cubic inch capacity, plus patented adjustable drawer dividers permitting drawer sub-compartments and drawer-front indexing labels.

**Model 17-909** — transparent drawers
**Model 18-909** — heavy-duty gray drawers

Industrial User

**$19.99**




## 8 DRAWER CABINET

**JUMBO-DEEP DRAWERS**

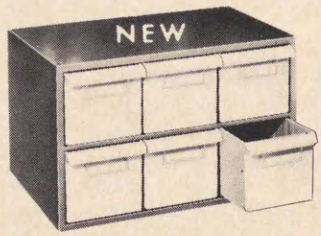
**EACH: 4"W x 11"L x 4¾"H**
**FRAME: 18"W x 11"D x 11"H**

Heavy-duty, all-steel frame with 8 drawers; each has 209 cubic inch capacity plus patented adjustable drawer dividers permitting drawer sub-compartments, and drawer-front indexing labels.

**Model 18-608** — heavy-duty gray drawers

Industrial User

**$19.99**




## 6 DRAWER CABINET

**SUPER-JUMBO DRAWERS**

**EACH: 5¼"W x 11"L x 4¾"H**
**FRAME: 18"W x 11"D x 11"H**

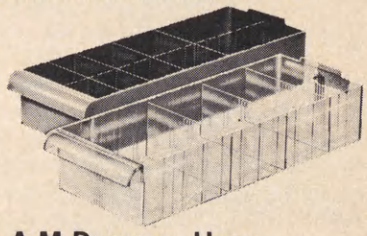
Heavy-duty, all-steel frame with 6 super-jumbo drawers; each has 261 cubic inch capacity, plus patented adjustable drawer dividers permitting drawer sub-compartments and drawer-front indexing labels.

**Model 18-956** — heavy-duty gray drawers

Industrial User

**$19.99**

## TWO TYPES OF DRAWERS HEAVY-DUTY OR TRANSPARENT



### A-M Drawers Have Many Features:

- ☐ Rust & corrosion proof.
- ☐ Open & close smoothly.
- ☐ Safety features — no cuts or scratches from sharp metal.
- ☐ Non-toxic, non-conductive.
- ☐ 60% lighter than steel, yet will not warp or twist out of shape.
- ☐ Patented "lock-tight" dividers prevent drawers from spreading. May be moved to create different sub-compartments. Parts cannot creep from compartment to compartment.

### A-M CABINETS ARE SYSTEMIZED & EXPANDABLE

Start with one — add 'n stack other models to create a miniature warehouse. 9 models to choose from. Stack securely — no bolting or shelving required.

All frames are 18" wide. Made of heavy-duty steel with chip-proof, baked-enamel, charcoal hammertone finish. Quality built to last. Cabinets may be stacked together, hung from walls or placed into shelving or on any level surface.



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# EPOXY DISPENSING SYSTEMS

• LOW COST • SIMPLE OPERATION • ABSOLUTELY CLEAN

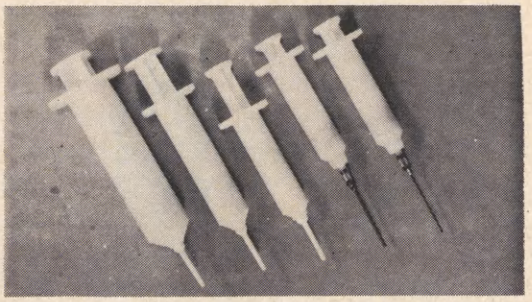
**FOR POTTING, ENCAPSULATING AND SEALING OF MINIATURE AND SUB-MINIATURE COMPONENTS.**

**These Potting Syringes** are molded of high-density, linear polyethylene and will resist highly reactive compounds and solvents such as potting compounds, bonding agents' adhesives, caulking, or other materials.

These disposable syringes can be discarded after use. This eliminates the necessity for cleaning with costly solvents, and sharply reduces the danger of skin irritation likely to result from contact with residue of the compounds being handled.

These syringes are available from stock in three standard sizes: 6cc (Model E-601), 12cc (Model E-602), and 30cc (Model E-603); each has a polyethylene dispensing tip.

Model E-601N (6cc) is designed for use with a detachable 1½ inch stainless steel needle. Dispensing orifices of 0.030" and 0.060" are standard; other orifices and needle lengths can be furnished on special order.



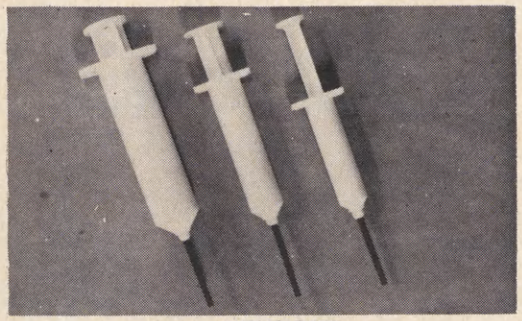
**SYRINGES**

| Quantity | 6cc E-601 | 12cc E-602 | 30cc E-603 | 6cc (0.060" orifice) E-601-N | 6cc (0.030" orifice) E-601-N |
|---|---|---|---|---|---|
| 1 to 49 | .49 ea. | .53 ea. | .62 ea. | .71 ea. | .76 ea. |
| 50 to 99 | .37 ea. | .41 ea. | .50 ea. | .58 ea. | .63 ea. |
| 100 to 199 | .26 ea. | .30 ea. | .39 ea. | .46 ea. | .51 ea. |
| 200 to 499 | .16 ea. | .20 ea. | .29 ea. | .35 ea. | .40 ea. |
| 500 & over | .12 ea. | .16 ea. | .25 ea. | .30 ea. | .35 ea. |

**These Potting Applicators** are similar to the potting syringes except that the disposable polyethylene body has a hollow 1½" long, stainless steel needle secured at the discharge end.

The large orifice (0.016") of the needle makes this device suitable for handling all types of viscous materials used for potting, encapsulating and sealing applications.

These syringes and applicators are also useful as storage containers for frozen, pre-mixed two-part materials.

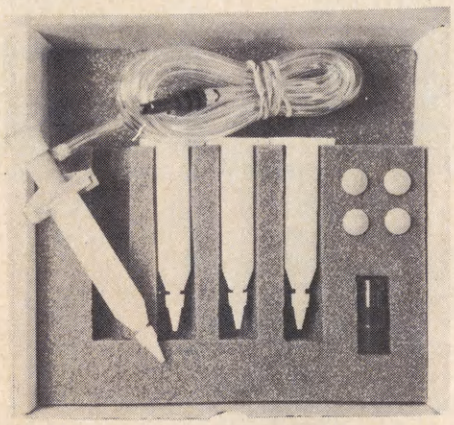


**APPLICATORS**

| Quantity | 6cc E-601-10 | 12cc E-602-10 | 30cc E-603-10 |
|---|---|---|---|
| 1 to 49 | 1.18 ea. | 1.22 ea. | 1.31 ea. |
| 50 to 99 | .98 ea. | 1.02 ea. | 1.11 ea. |
| 100 to 199 | .85 ea. | .89 ea. | .98 ea. |
| 200 to 499 | .67 ea. | .71 ea. | .80 ea. |
| 500 & over | .62 ea. | .66 ea. | .75 ea. |

**NO-DRIP POTTING APPLICATORS**—Addition of spring in barrel causes a suction when the pressure is released and prevents dripping. The use of these syringes permits discharge of the proper amount of material into small and hard-to-fill areas without flooding, starving or dripping.

**TO ORDER:** Add 50¢ per unit to above prices in quantities of 1-99 and 35¢ additional per unit for quantities of 100 or over. Prefix stock number of desired item with "ND".



**MICRO AIR DISPENSER**—The Micro Air Dispenser provides air operated, controlled applications of all types and viscosities of adhesives, sealants, coatings, potting and encapsulating compounds. Dispensing a dot, a line, or a continuous flow, the system is designed to meet the requirements of micro-modular electronics production, as well as many industrial and specialty applications. The unit features compactness and light weight, effortless operation, positive on-off flow control, and disposable low cost syringe barrels that eliminate cleanup.

EACH MICRO AIR DISPENSER KIT INCLUDES ALL NECESSARY ACCESSORIES TO BEGIN IMMEDIATE PRODUCTION APPLICATIONS.

- MICRO AIR VALVE
- FIVE FOOT AIR LINE ASSEMBLY, COMPLETE WITH QUICK DISCONNECT
- DISPOSABLE SYRINGES WITH MOLDED NEEDLE NOZZLE, PLUNGERS AND NOZZLE CAPS

TWO MODELS AVAILABLE

**TS 500**— 6cc Capacity ..... **$24.95**
**TS 875**—30cc Capacity ..... **27.95**

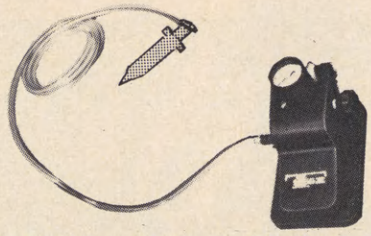
**MICRO–AIR REGULATOR**—This unit, adaptable to all the dispensing stations, designed for operation with unregulated air systems. Easy–View pressure gage allows you to control the exact pressure needed to feed your compound.

MICRO–AIR KITS DO NOT INCLUDE REGULATOR! Regulator TS 906 may be obtained as an accessory for your dispensing station.

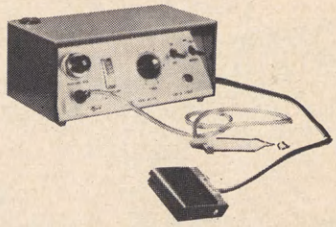
**TS 906** ..... **$21.00**

**ALL PRICES SUBJECT TO CHANGE** **F.O.B. PHILADELPHIA**

# EPOXY DISPENSING SYSTEMS

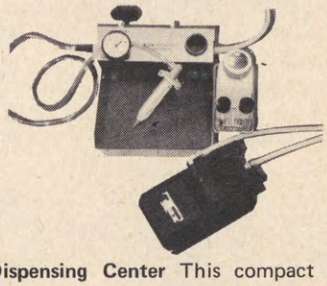


**TS1 MICRO–AIR Dispensing Station TS–900 F.** The special design of this unit frees both hands in micro miniature electronic applications. This unit can operate up to 100 PSI to allow the dispensing of viscous materials through ultra–small orifices. Contamination, waste and mess are eliminated with the positive material shut–off. Set the pressure regulator, press down on the foot valve and the compound feeds smoothly until you raise your toe. All pressure in the syringe vents to prevent "bleeding." **$49.00**

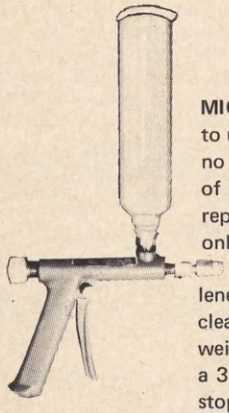


**TS1 VARI–METER** With precision, you can dispense metered dots, lines, volumes of technical liquids, viscous mastics or potting compounds from a disposable syringe. Just a touch of the foot switch and selected amount of compound is fed automatically and stops. It accurately repeats the feeding, of most compounds to ± 0.1%. **$295.00**

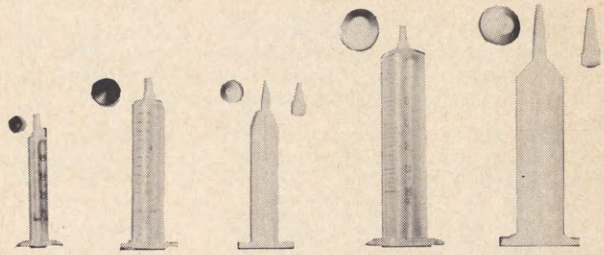
**The TS–905 Dispensing Center** provides a fast, sensitive dispensing system for potting, coating, gluing, and related operations. This system includes its own air pressure regulator, a MICRO–AIR syringe dispenser, a foot–control valve, air pressure gage, and a "pump–top" solvent bottle. The TS–905 uses 6- or 30-cc disposable polyethylene (or polypropylene) syringes, and can adapt to most 1½- to 2½-cc syringes. **$109.00**



**TS–905–2½ Dispensing Center** This compact work center for potting, sealing, and related applications includes foot switch, pressure regulator, MICRO–AIR dispenser, tool rack and cleaning and solvent bottles. DISPENSING CENTER works with 2½, 6, or 30cc disposable plastic syringes and adapts to most 1½ and 2½cc syringes. Precision feed stops completely on release of self–venting foot switch no bleeding or leakage between cycles. **$109.00**



**MICRO–GUN SHOT DISPENSER** This easy to use adjustable shot epoxy dispenser needs no air. This metered micrometer adjustment of shot size allows rapid trigger action with repeatable accuracy of flowable materials only. Material pours in closed type polyethylene cartridge (3 oz./6 oz.). It is easily cleaned and all parts are replaceable. Lightweight only 12 oz. ESMG–300 included: a 3 oz. cartridge, a 6 oz. cartridge, a #950 P stopper, needles and bench stand. **$49.00**



| PHOTO KEY NO. | ASSEMBLY NO. | CAPACITY (cc.) | BARREL ONLY No. | STOPPER ONLY No. | TIP TYPE | TIP CAP No. |
|---|---|---|---|---|---|---|
| 1 | MA2L | 2½ | MA2-2 | MA2-2 | LUER | |
| 2 | MA10L | 10 | MA10L-1 | MA10L-2 | LUER | |
| 3 | MA6T | 6 | MA6T-1 | MA6T-2 | TAPER | MA6T-3 |
| 4 | MA30L | 30 | MA30L-1 | MA30L-2 | LUER | |
| 5 | MA30T | 30 | MA30T-2 | MA30T-2 | TAPER | MA30T-3 |

| NO. | 1-49 | 50-99 | 100-499 | 500-999 | 1000 + |
|---|---|---|---|---|---|
| MA 2-L | $.09 | $.08 | $.07 | $.05 | $.03 |
| MA 6-T | .22 | .20 | .17 | .10 | .09 |
| MA 10-L | .25 | .21 | .19 | .09 | .07 |
| MA 30-L | .28 | .25 | .22 | .18 | .15 |
| MA 30-T | .29 | .26 | .23 | .19 | .16 |

| NEEDLE NO. | GAUGE | STD. LENGTH | NEEDLE NO. | GAUGE | STD. LENGTH |
|---|---|---|---|---|---|
| TS 25 | 25 | 1" | TS 20 | 20 | ½", 1⅛" |
| TS 23 | 23 | 1" | TS 18 | 18 | ½", 1½" |
| TS 22 | 22 | ⅜", ½", 1½" | TS 11 | 11 | 1", 3", 4" |

**DISPOSABLE STAINLESS DISPENSING NEEDLES - BLUNT END**

| TS | 18, | 20, | 22, | 23 & 25 |
|---|---|---|---|---|
| 1 - 99 | $.15 | | 100 - 499 | $.12 |
| 500 - 999 | $.09 | | 1000 + | $.09 |

| TS 11 | 1" | 3" | 4" |
|---|---|---|---|
| 1-99 | $.25 | $.45 | $.50 |
| 100-499 | .22 | .40 | .45 |
| 500-999 | .20 | .37 | .42 |
| 1000 + | .18 | .34 | .39 |



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# CONDUCTIVE EPOXIES

Epoxy Silver Solders and Coatings combine the high bond strength of Epoxy with the conductive qualities of silver. E-Solders are ideal for conductive bonds to heat sensitive semiconductors, for quick field repairs, conductive bonds between metals which are difficult to solder and for repairs on crowded printed circuit boards.

The E-Kotes are designed for painting conductive paths between components, electric shielding; connecting leads to heat sensitive thin film, components, etc. They are available in both liquid and aerosol spray can form.

Heat is required to cure the paste. May be thinned with cellosolve acetate. Shelf life is six months. Stored under refrigeration at a temperature of 40° F. Extremely low electrical resistance. Excellent adhesion to a variety of surfaces including glass, ceramic, plastic and metal.

**FEATURES:**

**E-SOLDER**

- Can be used at room temperature for components which are heat sensitive
- Conductive bonds between dissimilar materials.
- No flux or residue to contaminate sensitive electronic components.
- Good microwave properties.

**E-KOTE**

- All the properties of E-Solder plus.
- Can be used to paint or spray electric shielding on electronic components and modules.
- Make experimental changes on printed circuits. New leads can be painted in and components can be temporarily removed by painting a short across them.
- Connect leads to heat sensitive thin films.

**E-SOLDER AND E-KOTE CHARACTERISTICS**

| Number | Description | Base | Hardener Ratio | Shear (PSI) @ 25° C | Pot Life | Typical Cure Schedules | OHM-CM Resis- | Max Oper. Temp. °C | Trial Kit | Bulk Rate |
|---|---|---|---|---|---|---|---|---|---|---|
| **3021** | 2 Part Paste | Epoxy | 1 Part A<br>1 Part B | 2500 | 8 to 10 Min. | 27C - 24 Hrs.<br>65C - 3 Hrs. | .001 | 125-150 | **$15.00**<br>2 oz. | **$61.60**<br>8 oz. |
| **3026** | 2 Part Paste | Epoxy | 100 Parts 3026<br>6½ Parts #45 Har. | | 1 Hour | 60C - 4 Hrs. | .01 | 125-150 | **$15.00**<br>2 oz. | **$61.60**<br>8 oz. |
| **3028** | Conductive Grease | Silicone | One Part - syringe dispensed | | | | .01 | 250 | **$15.00**<br>2 oz. | **$61.60**<br>8 oz. |
| **40** | Aerosol Can | Thermo-plastic | | | | Air Dry | .001 | 125-175 | **$15.00**<br>8 oz. | **$170.00**<br>12 Cans |
| **3040** | Paint | Thermo-plastic | | | | Air Dry | .001 | 125-175 | **$15.00**<br>3 oz. | **$56.25**<br>16 oz. |
| **3205** | Gold filled Conductive Epoxy | Thixo-tropic Paste | | | | 125C - 6 Hrs.<br>150C - 1 Hr.<br>200C - 10 Min. | .01 | | **$25.00**<br>5 Gms.<br>Kit | **$87.50**<br>oz.<br>1-3 oz. |

**E-SOLDER 3021**—Easy to mix in a 1 to 1 ratio.

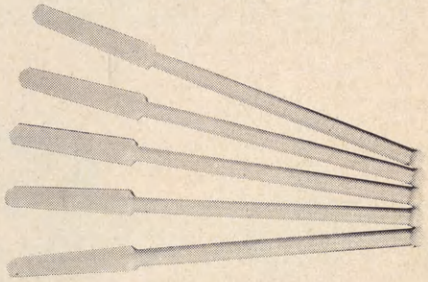
**E-SOLDER 3026** — Flexible for applications which require bending.

**E-KOTE 4**—Spray on electric shielding.

**E-KOTE 3028** — Conductive silicone grease reduces wear on switch contacts and improves conductivity.

**ALLOY DETECTOR 400**

Can distinguish between: 18-8 stainless steel, 400 series stainless steel, 316 stainless, monel, nickel, steel, cobalt alloys, hastelloys, Haynes #25, Stellite, Inconel and many others. Virtually non destructive tests. Can be used on finished parts. Includes: Alloy comparison samples to check reactions. Instructions and alloy identification chart. . . . . **$58.50**

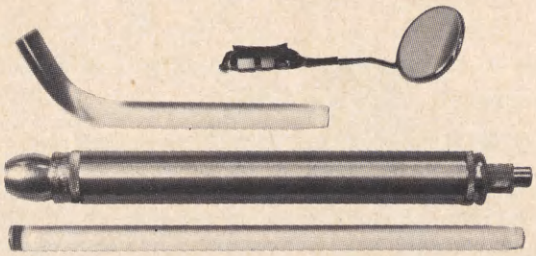


**DISPATULA**

Disposable plastic spatula for paste and cements, and rubber base materials. Will not withstand industrial solvents. Box of
100 . . . . . **.$6.25**
3. . **$14.95** 6. . **.$29.00** 12. . **$54.00**

**ALL PRICES SUBJECT TO CHANGE** **F.O.B. PHILADELPHIA**

# ENCAPSULATING AND DUPLICATING MATERIALS



**CONDUCT-A-LITE—INSPECTION KIT #5**—Made of light weight sturdy aluminum, finely finished. Plastic light conductors transmit 92% of bulb's light. Chrome plated clip-on mirror. No power line needed, operates on two standard penlite batteries. Thousands of uses in industry for inspecting tools and dies, machine parts and intricate electronic components.

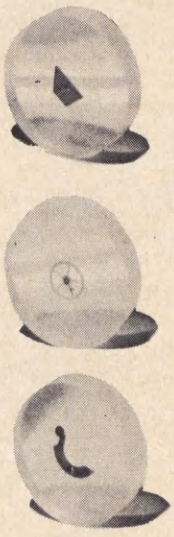
**KIT No. 5**—(includes batteries) ..... ea. **$5.75**
10 rate: (includes batteries) ..... ea. **$5.25**

**V-B CASTING SYRUP**—TRANSPARENT COLD CURE ENCAPSULATING MATERIAL—V-B products (methyl methacrylates) do a superior mounting job in only a fraction of the time usually consumed. Where once it took technicians a full day to process a mounting, this simple process is utilized by one man and completed in a half to one hour (approximately).

V-B casting syrup is the only crystal clear casting syrup on the market and sets or cures in 55 to 70 minutes with a workable pot life of 20 to 30 minutes.

**ADVANTAGES:**
CONVENIENCE—Simple to use singly or in multiples.
HARDENS READILY—At low temperatures or even under water.
NO HEAT—Requires no heat or pressure.
NO SCRIBING—I-D tags imbedded in resin.
ACID RESISTANCE—Unique resistance to most acids and etching re-agents.
EASY TO USE—In liquid form with powder catalyst (add .05 gm. powder to 20 gms. syrup).

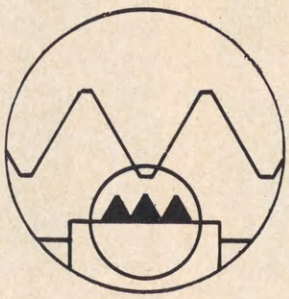
**"VCI" RUST INHIBITOR**—"VCI" is a unique de-oxidizing and neutralizing corrosion and rust inhibitor. Contact and vapor protection. Non-Toxic.
6 oz. spray can ..... **$2.50**
2 oz. squeeze bottle ..... **$1.25**



## NO HEAT OR PRESSURE NEEDED FOR:

- EMBEDDING
- ENCAPSULATING
- CASTING
- POTTING
- SEALING
- DUPLICATING
- MOUNTING SPECIMENS

Trial Kit ..... **$10.00**
5 lb. ..... **40.00**



Optical projections made with "Facsimile" are duplicates of the originals within millionths!

**"FACSIMILE" KIT** Here is a complete introductory one pound kit that provides you with a new material that can pay for itself in one application! After allowing 6 to 8 minutes to harden, the material can be treated in the same manner as steel. You can duplicate surface finished from 3 to 1,000 Micro-inches. You can check flatness to millionths and the material will retain its stability forever. The "Facsimile" can be diluted from a putty consistency to a watery to best suit your job needs. If larger quantities of "Facsimile" are desired they can be ordered from 3 lb., 25 lb., 50 lb. and 100 lb. kits at proportionately lower prices per pound.

**TYPICAL USES:** Duplicates for measuring, testing surface, permanent records of surface, custom holding fixtures, moulds and patterns, filling in, sealing, cast prototypes, thread locking adhesive, potting, bonding, repairing. **$19.50**

**KIMWIPES DISPOSABLE WIPERS** — LINT FREE — NEW! Completely lint free, it can be used safely in all white rooms. Excellent for wiping items in and outside of clean room. Safe, low cost cleaning and polishing with soft cloth like wiper. Handy pop up carton—2 sizes.

| Stock #3415 | Stock #3425 |
|---|---|
| 5" x 8¾" wiper | 15" x 17⅝" wiper |
| 240 wiper/packs | 100 wipers/packs |
| 72 packs/carton | 24 packs/carton |
| **$19.50**/carton | **$15.00**/carton |
| **$18.00**/6 carton rate | **$13.75**/6 carton rate |
| **$17.25**/12 carton rate | **$12.75**/12 carton rate |

**No. 70 LINT-FREE WIPERS** — This 100% lint-free wiper has high utility in "clean room" production or assembly areas. A "must" in your contamination-prevention program.

No. **70**—(Approx. 14" sq.)
**$6.95** Doz.
**$6.00** Doz. (6 Doz. Lots)
**$5.50** Doz. (12 Doz. Lots)

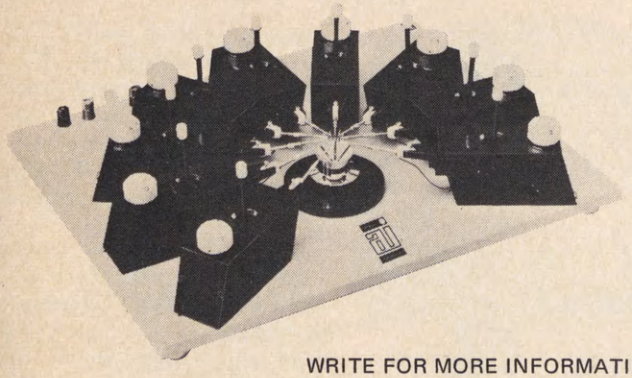
No. **75**—Full 18" sq.
**$7.95** Doz.
**$7.00** Doz. (6 Doz. Lots)
**$6.50** Doz. (12 Doz. Lots)



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ABACUS MICROPOSITIONERS

**MICROPOSITIONER TEST STATIONS**
COMPLETE STATIONS FOR ANALYTICAL SEMICONDUCTOR TESTING AND INSPECTION INCORPORATING FROM 2 TO 9 PRECISION MICROPOSITIONERS AND A UNIVERSAL TRAVERSING STAGE WITH VACUUM CHUCK.
PRECISION BASE PLATE 16" x 20" x 3/4", is Benelux 70, a new rigid composition material that is inert to most chemicals, nonconductive. Incorporates electrical jacks that accept standard banana plugs for a maximum of nine Micro-Positioners.



WRITE FOR MORE INFORMATION

| | | |
|---|---|---|
| **ATS-2** | Two Micropositioner Test Station | **$ 763.00** |
| **ATS-3** | Three Micropositioner Test Station | **1008.00** |
| **ATS-4** | Four Micropositioner Test Station | **1253.00** |
| **ATS-5** | Five Micropositioner Test Station | **1498.00** |
| **ATS-6** | Six Micropositioner Test Station | **1743.00** |
| **ATS-7** | Seven Micropositioner Test Station | **1988.00** |
| **ATS-8** | Eight Micropositioner Test Station | **2233.00** |
| **ATS-9** | Nine Micropositioner Test Station | **2478.00** |

**PRESSURE-ADJUSTABLE 1, 2, 3 AND 4-POINT MEASUREMENT PROBES** Continuously adjustable Probe Point pressure of from 70 to 180 grams. Tempered steel probe pins for optimum accuracy in four standard point spacings. Wear resistant, self-lubricating probe housing. **Specify . . . . . $60.00**

**MODEL ATP-1 TEST PROBE FIXTURE**
A precision-machined assembly for high accuracy in probe testing of silicon or germanium resistivity. Adjustable four ways for optimum versatility.

FULLY ADJUSTABLE FOR VERSATILE PROBE MOVEMENT

TRUE VERTICAL TRAVEL AND ADJUSTABLE PRESSURE PREVENT WAFER DAMAGE

LOCK SCREW SECURELY HOLDS PROBE ARM ASSEMBLY AT ANY HEIGHT

PRECISION MACHINED FOR LONG-TERM ACCURACY

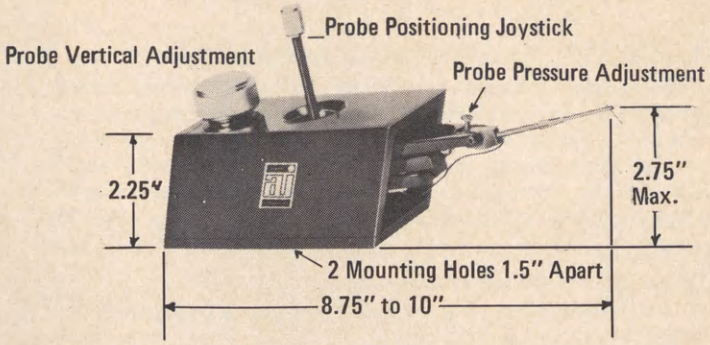
HEAVY BASE PLATE ASSURES STABILITY, LOW CENTER OF GRAVITY
WEAR COMPENSATING DESIGN MAINTAINS ACCURACY
**$198.00**

**MODEL ATP-2 TEST PROBE FIXTURE WITH UNIVERSAL TRAVERSING STAGE**

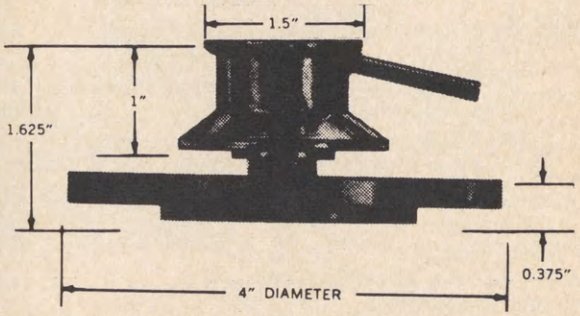
MANUAL XYZ ADJUSTMENT

SPRING LOADED PEDESTAL

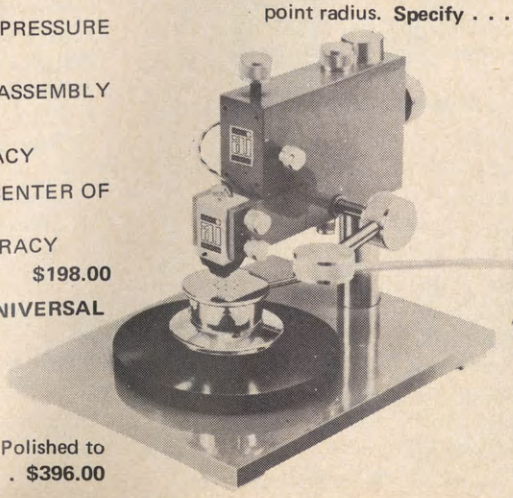
PRECISION VACUUM CHUCK Heavily chrome plated. Polished to a flat, smooth surface to firmly hold any device. . . . . **$396.00**

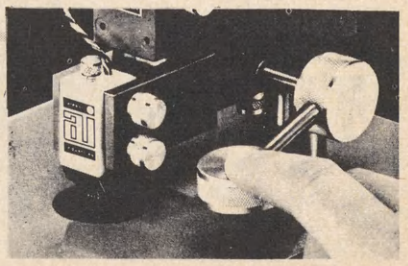



**MODEL AMP-1 PRECISION MICROPOSITIONER**
SCANS AND PROBES A LARGER AREA Probe point traverse 360° in a horizontal plane within an area 0.300" in diameter. 20% larger than with other instruments.
PRECISE CONTROL, SMALLER CONTACT AREA Small as 8 microns in diameter.
TRUE VERTICAL PROBE TRAVEL ELIMINATES REPOSITIONING Eliminating the need for corrective positioning between scan and contact and prohibiting probe point sliding that could scratch or damage devices under test.
ADJUSTABLE PROBE PRESSURE OVER THE PROVEN RANGE From 2 to 20 grams. 60% less than minimum pressures of other available instruments.
QUICK PROBE ARM LENGTH ADJUSTMENT Provides for extending or retracting the arm as much as 1.5 inches. . . . **$245.00**




**MODEL AUS-VC UNIVERSAL TRAVERSING STAGE**
MANUAL XYZ ADJUSTMENT Free movement in all directions in the horizontal plane to a lateral distance of 0.5" from the stage mounting center.
SPRING LOADED PEDESTAL Provides for large-scale adjustment in the downward direction from the normal pedestal height. A slight detent force permits positioning or removal of devices during tests without the hazard of scratching. The pedestal incorporates a locking detent in the lowered position. . . . **$198.00**
**REMOVABLE PRECISION PROBE POINTS** 0.00015" or 0.00025" point radius. **Specify . . . . . .$1.50**





# ULTRASONIC CLEANERS

## TECHNI-TOOL ULTRASONIC CLEANERS

Ultrasonic cleaning is fast and reliable, adaptable and economical, consistent and effective. Why? Because cleaning action is generated by high frequency sound waves that will go around corners, penetrate deep recesses or actually pass through barriers. The advantages of ultrasonic cleaning can now be realized where equipment costs prohibited its use before.

### FEATURES:

Highest performance small unit available.
All solid-state circuitry. The ultrasonic generator is built right into the unit.
Quality components throughout, insures long trouble-free operation.
Engineered for continuous duty.
No fan or other moving parts.
Lead Zirconate Titanate transducer.
Stainless steel tank with rounded corners.
Simple operation. One on/off power switch.
Capacity of tank can be increased by use of auxiliary tanks or beakers.

### ACCESSORIES

**MODEL 2-1** Insert Polystyrene (one quart). . . . . **$ 1.50**

**MODEL 12-2** Insert Tray (perforated) 5" x 5" x 3". . . . . **7.00**
**12-3** Beaker positioning cover for one beaker . . . . **6.00**
**12-4** Beaker (400ML pyrex) . . . . . **1.50**
**12-5** Beaker (400ML polypropylene) . . . . . **3.00**
**12-6** Tank cover (stainless steel) . . . . . **6.00**

**MODEL 220-2** Insert Tray (perforated) 8" x 4" x 3". . . . . **12.00**
**220-4** Insert Tray (perforated) 5" x 5" x 3". . . . . **7.00**
**220-5** Beaker positioning cover for two beakers. . . **10.00**
**220-6** Beaker (600ML pyrex) . . . . . **1.50**
**220-7** Beaker (600ML stainless steel) . . . . . **7.50**
**220-8** Beaker (400ML polypropylene) . . . . . **3.00**
**220-9** Tank cover (stainless steel) . . . . . **9.00**

### APPLICATIONS:

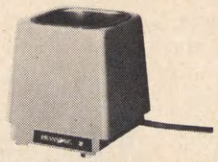
Cleaning precision parts and mechanisms.
Electronic components.
Optical equipment.
Intricate laboratory glassware.
Accelerating chemical reactions.
Bio-medical components.
Scientific instrument components, recorder pens, etc.

ONE-YEAR GUARANTEE

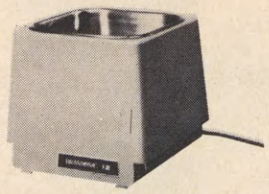
### SOLUTIONS

**#112** Waterless Cleaning Solution (ammoniated). Designed for precision metal parts ferrous and non ferrous.
**#112** . . . . . **$2.50/gal. - $11.25/5 gal.**
**#222** Waterless Cleaning Solution (ammoniated). Same as above without ammonia. Longer lasting.
**#222** . . . . . **$3.50/gal. - $16.25/5 gal.**
**#1** Powerful wetting and sequestering ability (cone). **$15.00/gal.**

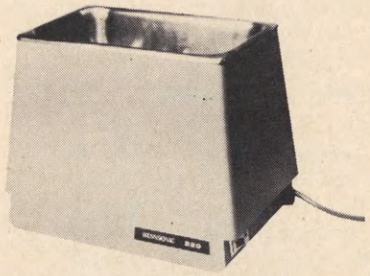
**ETCH-O-MATIC** Will etch into the surface of almost any metal, including tools, instruments, equipment, or labels, anything that can be typed, written, drawn or die impressed on a special stencil. This includes names, numbers, designs, trademarks or even your signature. Using an Electro-Chemical principal. Etch-O-Matic can etch as deep as .002 of an inch (with adapter clip) in less than 30 seconds or mark the hardest tool steel or carbides. Most marks take about 5 seconds. **$19.95 Complete**



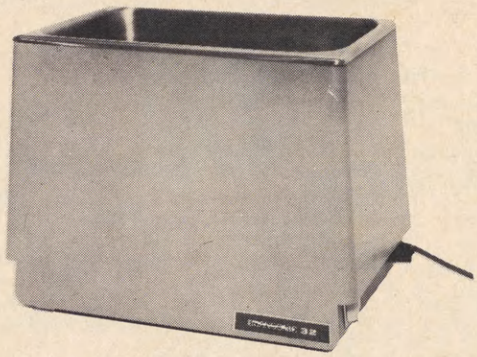
**Model 2**
Tank size, 3½" x 3½" x 2 5/8"
Overall size, 5" x 5" x 5"
Cleaning Power, 25 watts
Input Power, 50 watts
Line Voltage, 115 volt. 60 cycles
AC. . . . . **$50.00**



**Model 12**
Tank size, 5" x 5" x 3"
Overall size, 7¼" x 7¼" x 6"
Cleaning Power, 50 watts
Input Power, 75 watts
Line Voltage, 115 volt. 60 cycles
AC. . . . . **$60.00**



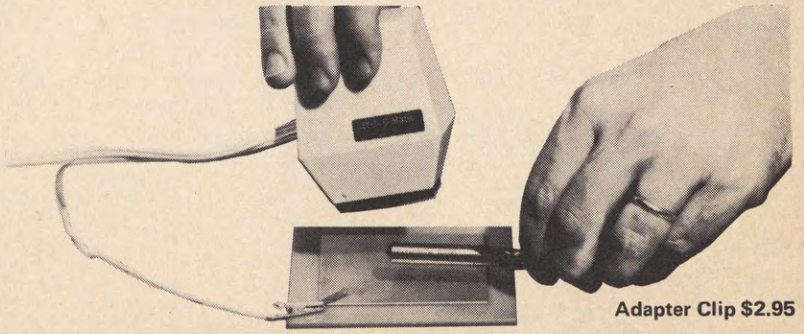
**Model 220**
Tank size, 5" x 9" x 4"
Overall size, 12" x 7½" x 9"
Cleaning Power, 100 watts
Input Power, 125 watts
Line Voltage, 115 volt. 60 cycles
AC. . . . . **$100.00**



**Model 32**
Tank size, 6" x 11" x 6"
Overall size, 14" x 8½" x 9"
Cleaning Power, 150 watts
Capacity, 1½ gallons
Line Voltage, 115 volts 60 cycles
AC . . . . . **$225.00**

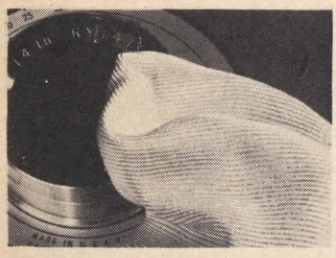
### SOLUTIONS

**Hydrosonic** Removes water soluble soils, fingerprints, water-based compounds-concentrate.
**Rinsing Solution** . . . . . **$3.50/gal. - $15.00/5 gal.**
**Ultrasonic Rinsing Solution** Drys rapidly without streaking or spotting, for use in conjunction with #112 and #222 solutions.
**Hydrosonic Solution** . . . . . **$12.50/gal.**



**Adapter Clip $2.95**

# CLEAN ROOM ACCESSORIES - TEXWIPE

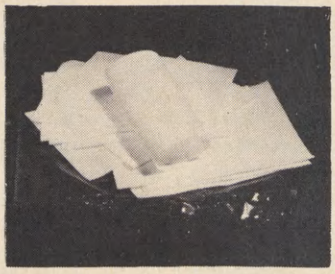


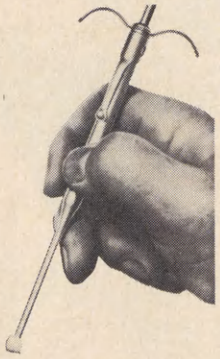
PRICES PER BOX

| Size | Quantity | 1 - 9 | 10 + |
|---|---|---|---|
| 4 x 4 | 1200 pcs. | $27.00 | $24.00 |
| 9 x 9 | 300 pcs. | $17.00 | $15.00 |
| 12 x 12 | 150 pcs. | $22.50 | $21.00 |

**TEXWIPE** A disposable 100% cellulose lint-free cloth designed for cleaning areas where non-contamination is essential. It's non-halogen and is suitable for use in atomic installations. The non-abrasive twill weave assures scratch-free wiping of sensitive surfaces. And it's static-free pure cotton. Twill surface permits a greater circulation of air, giving more thorough drying in a shorter time. It's cut on a bias, and edge sealed to prevent raveling. Contains no added binders, fillers, gelatins or metallic salts and has a high rate of absorbency.

**FOAMWIPE** It is not affected chemically by solvents, greases, hydrocarbons or oils at normal temperature. Can be safely sterilized with no tendency toward embrittlement at 50°C. Will not fragment, chip, crack, or peel under severe use. Lintless and scratch free. Foamwipes are laundered for clean room use and packaged in clean plastic bags. 60 pieces (6 x 9 x 1/8) per box. . . . . **$6.00**

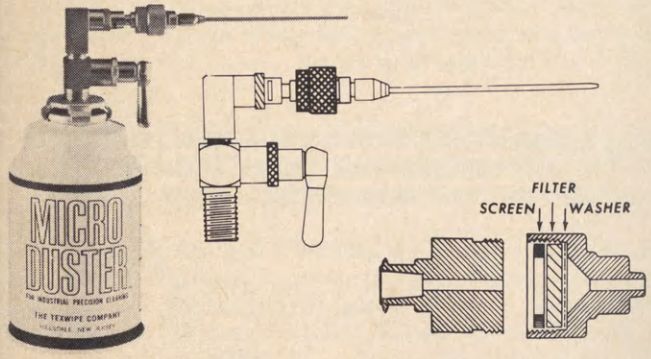




**FOAM CUBES AND PENCIL** A stainless steel cleaning instrument and applicator for use with disposable, lint-free Foam Cubes. Cubes are urethane foam and are resistant to most chemicals. Used with the Triceps Foam Pencil, it is possible to non-contaminatively clean even the most critical areas.
1000 5/8" Cubes . . . . . **$13.00**
1500 5/16" Cubes . . . . . **13.00**
Foam Pencil . . . . . **.7.00**

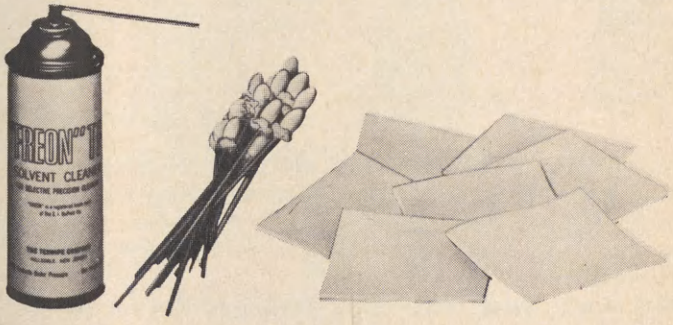
**OPTIC-CLOTH** Is designed for scratch-free cleaning and polishing coated optics. Made from a high count, combed cotton batiste. It is woven and finished to comply with Military Specification MIL-C-40129A(GL). For scratch-free polishing of bright metal and plastics, dusting photographic film and front surface mirrors. Available in rolls 300 feet long, 8½ inches wide. . . . **.$24.00/roll**

**FOAM-SWABS** A totally lint-free swab for use where non-contamination is essential. Open cell urethane foam with absorbent cotton underneath. Unique three dimensional skeletal structure offers a deep maze for particle entrapment. Non-abrasive and chemical resistant. Box of 50 swabs. . **$6.00**




**MICRO-DUSTER** A compact, portable, compressed laboratory clean gas for dusting, without abrasion, blind interior areas accessible to surface cleaning agents. A precision instrument made of the finest surgical chrome. The spray assembly is specially designed to pin-point a fine direct stream into the smallest surface opening. Contains 15 oz. of pressurized (70 psi at 70°F) dichlorodifluoromethane $CCL_2F_2$. For over 600 cleanings. Non-toxic, non-corrosive and non-flammable. . . . . **$17.00**
Micro-Duster Refills CTN. OF 12 CANS . . . . . **$22.00**

A Swinny Filter Assembly is available for critical applications in a controlled environment. . . . . **.$8.00**
25 Filter Discs . . . . . **.2.50**



**PRECISION CLEANING KIT** For critical cleaning of magnetic tape equipment. Included in the Kit:
600 - 4" x 4" TEXWIPE: bias cut, lint and static free cloths; non-abrasive, 100% cellulose.
50 - FOAM-SWABS: non-abrasive, lint-free urethane foam over a cotton base; unaffected by solvents, detergents or alcohol.
1 - TEXWIPE "FREON" TF SOLVENT CLEANER: 16 oz. aerosol can; non-flammable, con-conductive, leaves no residue.. . . . **$23.00**
**10 +**. . . . . **$21.00**

**"FREON" TF AEROSOL** Electronic grade selective solvent for precision cleaning. In 16 oz. cans. 12 cans per carton. . . . . **$29.00**

# CLEAN ROOM ACCESSORIES

## FOOT COMFORT CUSHIONS

REDUCE FATIGUE INCREASE PRODUCTION

**CUSHIONS AND RUNNERS** 3/8" thick small pore resilient sponge rubber base, treated to reduce slip on smooth floors. 3/32" heavy duty marbleized rubber tile cover coat. All outside edges beveled for safety and appearance unless otherwise specified. Runners up to 36 inches wide by any length. In black and white or charcoal gray.

**Cushions**

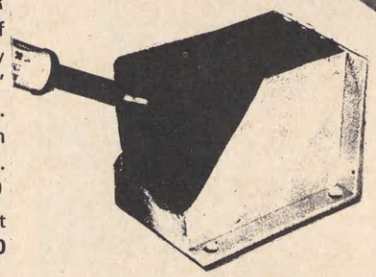
Style E – 18" x 30". . . . . **12.00**
Style F – 18" x 48". . . . . **15.00**
Style H – 36" x 64". . . . . **38.00**
Style J – 24" x 36". . . . . **15.00**

**Runners**

18" wide or less . . . . . **$ 5.00 per ft.**
19" to 24" wide . . . . . **.8.00 per ft.**
25" to 36" wide . . . . . **12.00 per ft.**

**#480 ONE-PASS TIP CLEANER** Eliminates cleaning problems of tip-plate damage, linting, stray solder pellets. Water-well (3/4" deep) keeps sponges wet all day. Styrene holder is bored for bench mounting. 2½" x 2¾" x 3½". **$2.00**

**480-S** Set of four replacement sponges . . . . . **$.50**



**DISPOSABLE PLASTIC FOOTGUARDS** For white rooms, missile and rocket centers, manufacturing plants and research laboratories. These convenient light weight plastic shoe covers are a revolutionary new idea for protecting shoes from dirt and contamination as well as protecting floors, sanitary areas and controlled environments from contamination by dirty shoes. Improved polyethylene, impervious to most chemicals.

Sizes: Specify size: up to shoe size 8, Medium; shoe size 8-10, Large, shoe size over 10, X-Large.

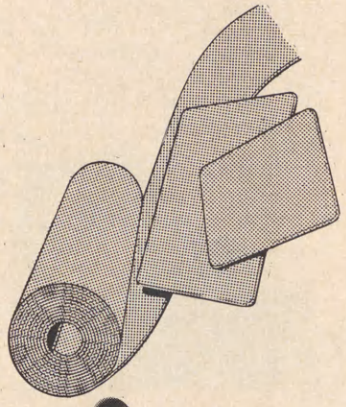
**Medium Duty B-65**

Packed 100 boots per dispenser roll
**$6.95** ea.
**$6.50** ea./ 6 pkg. lot
**$5.95** ea./12 pkg. lot

**Heavy Duty B-65-HD**

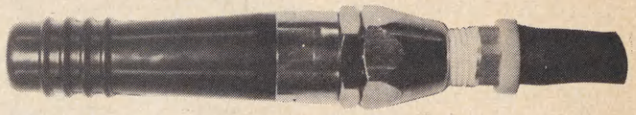
Packed 50 boots per dispenser roll
**$6.25** ea.
**$5.75** ea./ 6 pkg. lot
**$5.25** ea./12 pkg. lot

**SOFTY WORK MAT** — A non-skid-lint free work mat. Sanitary and resilient for small parts handling. The nylon tricot surface is bonded to a special foam base 3/32" thick. This compressible work surface protects delicate assemblies when being manipulated by tweezers, pliers, or fingers.



**M11** 11" x 14" **$ 1.50** per mat
**47.50** per box of 36

**M14** 14" x 22" **3.00** per mat
**97.50** per box of 36

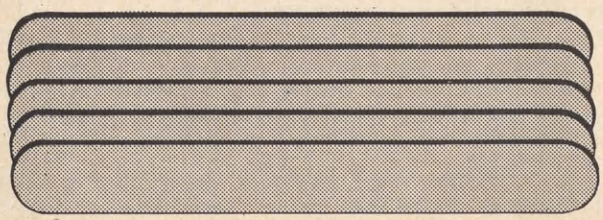


**VARI-JET AIR GUN** is built to give you laboratory quality air control, to put at your fingertips the exact air pressure required for any job. The perfect air gun for all types of air cleaning needs. The nozzle is durable plastic and is oil-proof. Nozzle plus 5' of coiled 300 p.s.i. tubing which compresses to about 8". With clamp ready to connect to existing air supply. . . . . **$19.95**

**AUTOMATIC FLUID-DISPENSING BOTTLE** Fluid is never exposed until used. The light pressure of an applicator or sponge on the stainless steel dispensing dish pumps fluid to surface. No cap to remove and replace, no need to touch the bottles. Linear polyethylene.

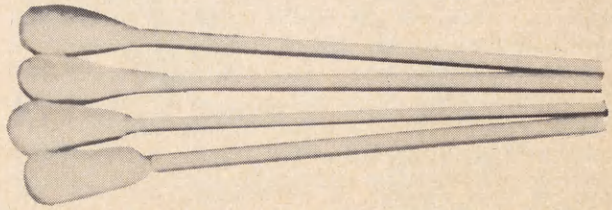
**#612** (4 oz.) **$4.00** **#613** (6 oz.) **$4.00** **#618** (8 oz.) **$4.00**

**"O" STICKS** Genuine Orangewood Sticks used in separating electrical components and in manufacture and repair of modules. Strong enough to use for wiring yet they will not mar valuable components. Length 7". Packed 1 gross per box.. . . . . **$9.00**



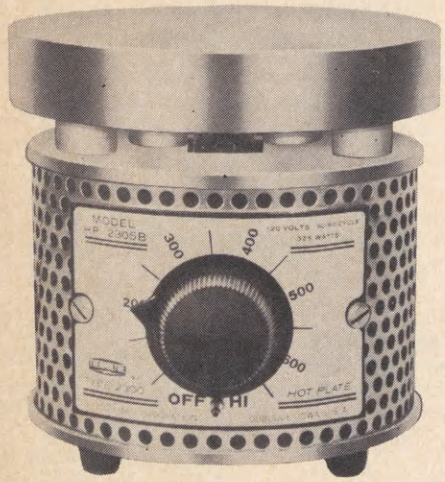
**WOODEN APPLICATORS**—Disposable, polished hard wood . . . fine-grained . . . ideal for mixers . . . applicators for epoxies, encapsulating materials, etc. 5⅜" x ¾" x 3/32"

Box (8 doz.) for **$1.25** ; 12 Boxes for **$10.50**



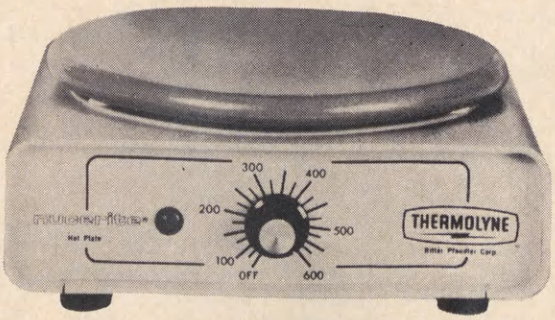
**COTTON WOUND WOOD APPLICATORS**—Manufactured of a straight grained white birch, long absorbent fibre cotton is held firmly by a special bonded adhesive 3 or 6 inch. Specify size. Box of 1000 for . . . . . **$2.50**
5 boxes for . . . . . **$9.95**

# CLEAN ROOM ACCESSORIES



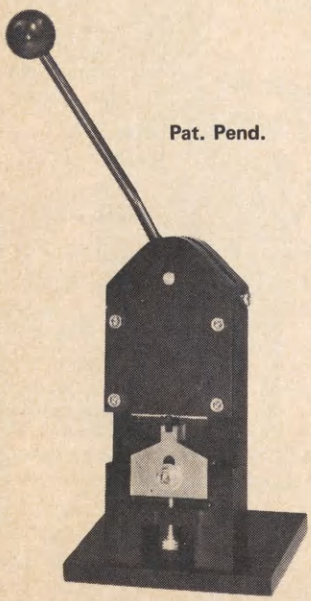
**MICRO HOT PLATE** Designed to fit tight budgets and tight spaces. It is built for continuous hard usage in places where other hot plates can't reach. Cast aluminum top plate distributes heat evenly over the entire surface. Has cement encased heating coils for maximum protection. A demand type thermostat offers infinite selection of temperatures from 10 degrees above ambient to 372C (700F) in 7½ minutes. Surface temperatures are held within plus or minus 1.8C (3F) of set point. Control automatically adjusts for changes in line voltage and ambient temperatures. The perforated stainless steel case allows cooling air currents to ventilate the controls and lower section. No damage to lab table or bench tops. Supplied with 3-prong cord. 3" x 3¾" x 4½". 2 lbs. shipping weight. Top plate diameter 3½".

**HP-2305B MICRO HOT PLATE**
50/60 cycles, 120 volts 2.7 amps, 325 watts.
**$17.50**




**NUCERITE** is a ceramic-metal combination with the noncorrodible advantages of glass (Nucerite is unaffected by most acids and alkalies) and the supporting strength of steel (Moh's hardness scale for Nucerite is 6-7). Attains 600°F in 3-4 minutes at plus or minus 3°F. The entire top plate is Nucerite. The printed circuit, type heating element covers the underside of the top plate and fused between layers of Nucerite, giving rapid heat-up and best protection against corrosion. Plate has a vinyl covered steel case finished in darker green. Recessed dial. Plate is furnished with pilot light. 3 conductor grounded cord-and-plug. 120 volts, 50/60 cy., 950 watts max. 7" x 7" x 3" high, 4 lbs. shipping weight. Max. oper. temp., 600°F, 6½" diameter top plate.
**Model HP-11415B . . . . . $34.50**
OTHER MODELS AVAILABLE

**MIDGET STIR-PLATE** Its midget size, light weight, strong stirring force and big heat capacity make it one of the most convenient and useful items in the lab. Low silhouette design provides stability for bench top use. Maximum variation at top temperatures is held to plus or minus 3C (5C). Running as low as 60 rpm, it exerts strong stirring torque, stays locked in phase with the stirring bar. Bimetallic thermostat in planned heat path maintains close control. Pilot light glows while unit is heating and turns "off" when set temperature is reached. Independent stepless temperature and stirring speed controls allow operator to heat and stir separately, or combine operations. Cast aluminum top plate, has embedded heating element for excellent heat transfer and uniform temperatures. Supplied with one Teflon stirring bar 1" long x 1/4" diameter, dovetail bracket, and 3 prong cord. Operates on 120 volts 50/60 cycles, 300 watts. Maximum operating temperature 260C (500F). 4¼" x 3 5/8" x 4¼".
**Model SP-10105B . . . . . $72.50**



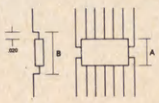
## #4920 FLAT PACK LEAD BENDER

Pat. Pend.

**Complete (Die Included) . . . . . $420.00 ea.**
**Die only . . . . . 165.00 ea.**

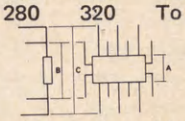
- Precision Bending and Cutting
- Interchangeable Die
- Burr Free
- Easy loading
  Portable - Black Anodiozed
- Trouble Free Cam Action
- Smooth and even operation. Will not damage components
- Also for Transistors and Resistors
- Special Dies made to your specifications
- Dimensions 12 x 4 x 3 approximately

**DOUBLE 90° BEND**



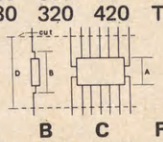
| DIE | A | B | FLAT PACK |
|---|---|---|---|
| #185 | 155 | 200 | To 84 & 89 |
| #187 | 190 | 230 | To 85 & 90 |
| #189 | 265 | 305 | To 86-88-91-95 |
| #191 | 280 | 320 | To 87 |

**SINGLE 90° STAGGERED**



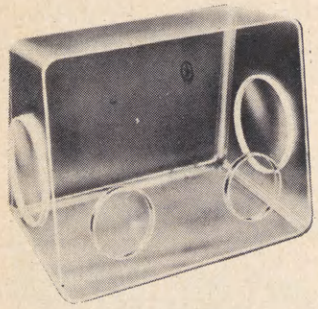
| DIE | A | B | C | FLAT PACK |
|---|---|---|---|---|
| #208 | 155 | 200 | 300 | To 84 & 89 |
| #210 | 190 | 230 | 330 | To 85 & 90 |
| #212 | 265 | 305 | 405 | To 86-88-91-95 |
| #214 | 280 | 320 | 420 | To 87 |

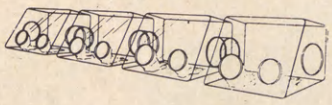
**DOUBLE 90° CUT OFF**



| DIE | A | B | C | FLAT PACK |
|---|---|---|---|---|
| #309 | 155 | 200 | 320 | To 84 & 89 |
| #311 | 190 | 230 | 350 | To 85 & 90 |
| #313 | 265 | 305 | 425 | To 86-88-91-95 |
| #315 | 280 | 320 | 440 | To 87 |

# WORK STATIONS - DRY BOX - LAMINAR FLOW





Four 41-905 Glove Boxes attached in series by means of 41-905-06 Coupling Sleeves.

**ECONOMY DUST BOX**—INEXPENSIVE DUST BOX, DRY BOX, GLOVE BOX AND ENVIRONMENTAL ENCLOSURE—Fabricated of 5/16″ Rohm & Haas Plexiglass 11-UVA, the front plate is welded to a one-piece mold in such a way as to give a hermetic seal. Overall dimensions are 36″ wide, 20″ deep and 26″ high.

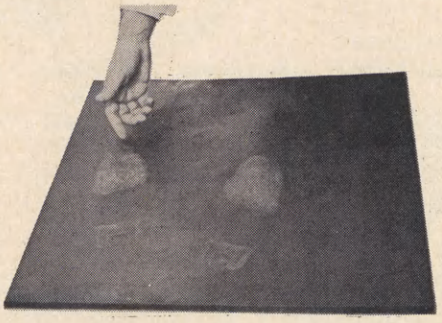
The two 12″ side entries have readily removable covers, and the 8″ circular glove holes will accept any standard glove-box glove.

Any number of boxes may be connected in series, by means of a sleeve type connector.

Also available, as optional accessories, are an air lock, valve connectors, fluorescent lamp, UV lamp and air blower with filter. Information available on request.

| | | | | | |
|---|---|---|---|---|---|
| **41-905-00** Economy Model Glove Box | $225.00 | **41-905-08** Hand Port Covers (pair) | $ 28.00 | **41-906-16** Fluorescent Lamp | $60.00 |
| **41-905-02** Air Lock | 76.00 | **41-905-10** Threaded Adaptor | 15.00 | **41-905-20** Bare Hand Entries (pair) | 65.00 |
| **41-905-04** Interior Cover | 22.00 | **41-905-12** Blower and Filter | 165.00 | **41-905-51** Side Hole Entry Cover | 15.75 |
| **41-905-06** Coupling Sleeve | 16.00 | **41-905-14** Ultraviolet Lamp | 93.00 | **36-541-40** Hose Connector 1/8 SS | 6.10 |

**RYNO FLOOR MATS** Specially formulated material. Is an excellent dust pick-up. Measures 24″ x 24″ x 1/2″ thick. Reversible, non-porous surface. Cleans with soap and water. Resists cuts and scratches. Tack restored or increased with rubbing alcohol. Unlimited life. Perfect for white rooms. . . . . $40.00
4 - 12 . . . . . 36.00



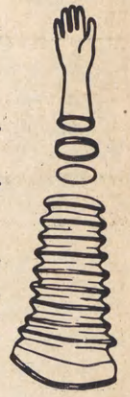
**ACCORDION SLEEVE** — WITH INTERCHANGEABLE HAND

STYLE No. **R-600**—30″ length, 8″ port size . . . . . **$30.00** pr.

STYLE No. **R-6006**—30″ length, 6″ port size . . . . . **$32.00** pr.

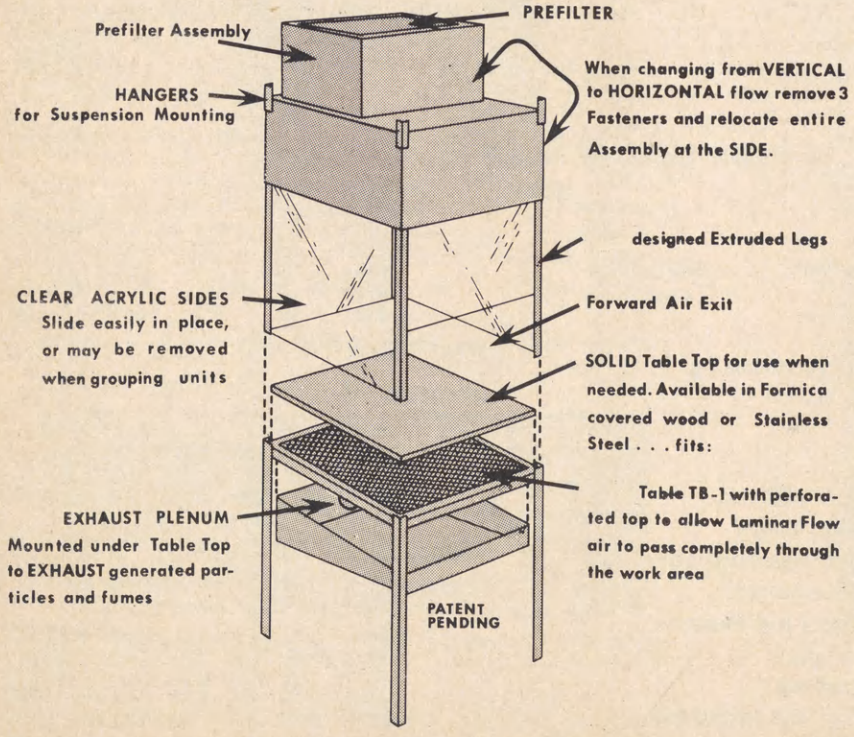
**Replacement gloves available.**

**REPLACEMENT GLOVE** — G-86 (.018″ thick, 12″ long black neoprene, flock-lined, sizes 6, 8, 9, 10, 11. Specify size.) . . . . . **$1.50** pr.



**BIO/CLEAN 100-PLUS**

The 100-PLUS is a modular laminar flow bio/clean work station. It meets needs for "technically clean" air approved for Federal Standard 209. Unit provides either vertical or horizontal air flow. Modules may be placed together to provide clean air for larger requirements. Has no leak HEPA filter. For electronic fabrication. Ultra-clean assembly packaging and bio/clean preparation and research . . . . . $395.00


PREFILTER
Prefilter Assembly
HANGERS for Suspension Mounting
When changing from VERTICAL to HORIZONTAL flow remove 3 Fasteners and relocate entire Assembly at the SIDE.
designed Extruded Legs
CLEAR ACRYLIC SIDES Slide easily in place, or may be removed when grouping units
Forward Air Exit
SOLID Table Top for use when needed. Available in Formica covered wood or Stainless Steel . . . fits:
Table TB-1 with perforated top to allow Laminar Flow air to pass completely through the work area
EXHAUST PLENUM Mounted under Table Top to EXHAUST generated particles and fumes
PATENT PENDING

**SEAMLESS NEOPRENE**—ONE PIECE

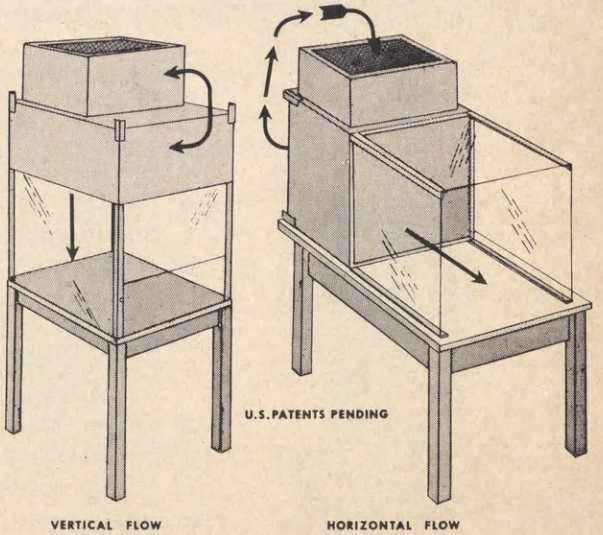
STYLE No. **N-278**—.015 gauge, 27″ length, 8″ port size . . **$18.00** pr.

STYLE No. **N-276**—.015 gauge, 27″ length, 6″ port size . . **$16.00** pr.

**NEW! EXTRA-WIDE WRIST—No. HF-287**—8″ PORT or No. **HF-627**—6″ PORT . . . . . **$28.00** pr.

(HF-HALOGEN FREE)

(Also available in latex)






ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# ANGELICA CLEAN ROOM APPAREL

**SUPER 100 CLEAN ROOM UNIFORMS** "Package People to Protect Products". Designed to meet or exceed Air Force Technical Order 00-25-203, Federal Standard 209, NASA Standard MSFC-STD-246, MCS-SPEC-C-2A, Navy Specifications. Continuous filament yarns and synthetic thread used exclusively. Controlled linting by elimination pockets, superfluous cut edges, pleats and belts. Seams are double needle stitched with no raw edges. Garments are just as cleanly finished inside and outside.

**DYCURA** is an Angelica exclusive. Dacron/rayon blend is extremely comfortable, gives excellent wear and reduces the generation of static electricity.

**DACRON POLYESTER** 100% continuous filament yarn, taffeta weave. Opaque, tightly woven. Good drape and hand. Long wearing, comfortable and acid resistant.

**BOUFFANT TAFFETA SNOOD**
One size fits all.
**6256 YQS** White Dacron . . . . **$3.25 ea.**

**SUPER II TAFFETA FROCK**

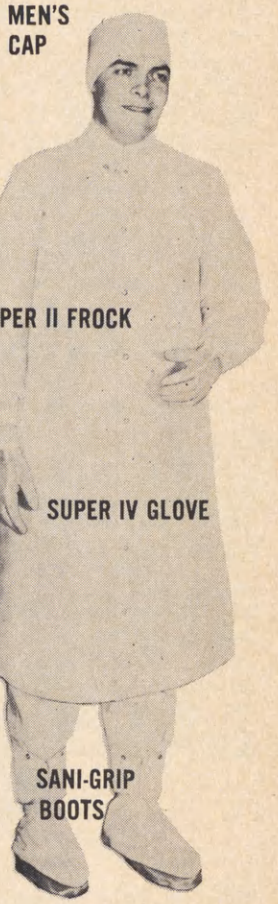
SIZES: Extra Small (equivalent to women's sizes (28 to 32), Small (34-36), Medium (38-40), Large (42-44), Extra Large (46-48).

**6427 YWQ** White Dacura . . . . **$9.95 ea.**
**6427 YQS** White Dacron . . . . **9.50 ea.**
**6427 YAS** Aqua Dacron . . . . **9.95 ea.**
**6427 YLB** Blue Dacron . . . . . **9.95 ea.**

**TAFFETA SNOOD**
**6252 YWQ** White Dacura, elastic band **$19.00 per dz.**
**6255 YQS** White Dacron drawstring **$19.00 per dz.**
**6255 YAS** Aqua Dacron drawstring **$19.00 per dz.**
**6255 YLB** Blue Dacron drawstring **$19.00 per dz.**

**COVERALLS**
SIZES: Extra Small (30-32), Small (34-36), Medium (38-40), Large (42-44), Extra Large (46-48).
**6726 YRK** White Dacron . . . **$16.95 ea.**
**6726 YRL** Blue Dacron. . . . **17.50 ea.**
**6726 YCK** White Dacura . . . **16.95 ea.**

**SUPER 100 TAFFETA HOOD**
Full coverage design fits comfortably and moves with head. Small (6¼-6¾), Medium (6 7/8-7 3/8), Large (7 1/2-8).
**6279 YQS** White Dacron . . . . **$5.75 ea.**




**MEN'S TAFFETA CAP**
Extra deep for full coverage of head and sideburns.
**6254 PQR** Red Nylon, with grippers **$16.80 per dz.**
**6254 YQS** White Dacron Polyester, with grippers . . . . **$16.80 per dz.**
**6254 YLB** Blue Dacron . . **16.80 per dz.**
**6254 YSS** Mint Green Dacron **$16.80 per dz.**
**6254 YWQ** White Dycura **$16.80 per dz.**

**STRETCH NYLON GLOVE**
Continuous filament stretch nylon, ambidextrous, one size designed to fit all.
**6853 NSQ** Women's glove **$14.40 per dz. pair**
**6854 NSQ** Men's glove **$14.40 per dz. pair**

**SUPER IV GLOVE**
Monofilament nylon tricot fabric. Inert plastic palm and fingers. A small, uncoated back panel assures coolness.
**6867 NRQ** Women's Sizes: (Small 6-6½), Medium (7-7½), Large (10-11) **$21.48 1 dz. pr.**
**6969 NRQ** Men's Sizes: Small (8-8½), Medium (9-9½), Large (10-11) **$21.48 1 dz. pr.**

**SANI-GRIP BOOTS**
The body is Dacura, with soles of extremely tough, non-porous plastic.
**6982 YWQ** White Dacura Taffeta, with plastic sole . . . . . **$4.95 pair**

**Size for All Men's or Women's Boots & Shoe Covers**

| | |
|---|---|
| Medium | Up to 7½ |
| Large | 8 to 10½ |
| Extra Large | 11 to 13 |

**PERMANENT PRESS SMOCK**
Polyester and cotton blend. Tailored style, roll-up sleeves. Sizes: Extra Small (28-30), Small (32-34), Medium (36-38), Large (40-42), Extra Large (44-46).
**88008 RCW** Blue . . . . . **$8.25**
**88008 RDW** Gold . . . . . **.8.25**
**88008 RUW** Red. . . . . **.8.75**

**FULL COVERAGE SMOCKS**
Permanent press blend of polyester and cotton. Adjustable back belt, 2 action back pleats. Sizes 28 to 44.
**88010 RHW** White . . . . . **$ 9.95**
**88010 RCW** Blue . . . . . **10.25**
**88010 RDW** Gold . . . . . **10.25**

**THREE-QUARTER FROCK**
4 button front, notched lapel collar. Full cut, back vent. Permanent press. Sizes 32 to 48.
**87008 RHW** White only. . . . . **$8.75**

**FROCK COAT**
Knee length, three pockets, straight back and no belt. Dacron high tenacity polyester is durable and acid resistant. With convertible lapel collar. Sizes 30 to 48.
**6436 YRK** White Herringbone Twill Dacron . . . . . **$12.95**
**83005 LQW** White Permanent Press **$12.95**

# FASHION SEAL CLEAN ROOM APPAREL

**GOWNS**

| SIZES: | XXS | XS | S | M | L | XL |
|---|---|---|---|---|---|---|
| WOMEN | 30-32 | 34-36 | 38-40 | 42-44 | | |
| MEN | | | 36-38 | 40-42 | 44-46 | 48-50 |

**NEW AIR FORCE SPECIFICATIONS FOR CLEAN ROOM UNIFORMS**—The latest revision of T.O. 00-25-203 delineates two categories of Clean Room Uniforms —"Minimum Clothing Requirements" of smocks, caps, clean room shoes or shoe covers and "Additional Clothing Requirements" for complete coverage, consisting of coveralls, caps or hoods, shoe covers and gloves.

Designed for utility and cleanliness, this 49" length smock (average length for size medium) offers the wearer complete coverage. The full length sleeves have gripper fasteners at cuffs which close sleeve bottoms to prevent exposure and prevent accidents. Smart military collar. Stainless steel grippers down entire front assure positive closure. No pockets, pleats, or any other dust collectors. (The gripper fastener at collar can be used for hanging hat in dressing room.) All seams have been carefully double-needled to prevent linting.

**STYLE #478** —White Dacron polyester taffeta **$8.40**
**STYLE #479** —Aqua Dacron polyester taffeta **8.95**

**DACRON LABORATORY COATS** — LINT-FREE—Acid-Resistant, Herring-Bone—100% Du Pont Polyester —The classic laboratory coat, featuring full length (with back slit for freedom of stride and movement) and re-inforced side vents for easy access to inner pockets. New convertible collar to be worn either open or closed. Six attached laundry-proof buttons, two large double-ply lint-free pockets, and one pencil-section breast pocket. Women's model features rear-belt fashion feature.

**#491** Men's White . . . . . **$12.50**
**#495** Ladies' White . . . . . **12.50**
**PERMANENT PRESS TWILL**
**#481** 65/35% Dacron/Cotton . . . . . **$11.95**
**LIGHTWEIGHT POPLIN**
**#485** 65/35% Dacron/Cotton . . . . . **9.75**

**BOOTS**

| SMALL | MEDIUM | LARGE |
|---|---|---|
| 4-7 | 7½-9½ | 10-13 |

**STYLES #1904 and #1905** — Here's America's most popular standard Clean Room garment, designed to combine comfort, freedom of action and maximum coverage. Stainless steel adjustable snap fasteners on trouser bottoms and sleeves offer added safety and protection. Features military collar, lint-free nylon tape 2-way zipper. Collar snaps insure positive closure and allow for adjustment.

**STYLE #1904**—White Herringbone Dacron polyester **$14.95**
**STYLE #1905**—Tan Herringbone Dacron polyester **$14.95**

**DISPOSABLE TYVEK**
**COVERALLS**
**#8605** Case of 24, one size . . . . . **$28.50**
**LAB COAT**
**#8646** Case of 24, one size . . . . . **$47.50**
**SHOE COVERS**
**#8665** Case of 200 . . . . . **$45.00**
**UTILITY GOWNS**
**#8675** Case of 24, one size . . . . . **$17.95**
**UTILITY CAPS**
**#8676** Case of 100 . . . . . **$11.50**

**UTILITY GOWN**—Suitable for Men or Women. Its unique reversible front makes it possible to stay clean twice as long. Side slits provide easy access to inner pockets. Collarless V-neck opening. Three roomy pockets, handy for instruments. 39" in length.

**STYLE #261** —White Dacron polyester taffeta **$7.95**
**STYLE #260** —Same as above, except short sleeves **7.85**

**NOMEX FABRIC AVAILABLE IN ALL STYLES. 6 PER SIZE (MIN.)**

**SPEED CAP** –Ultimate coverage for women workers. Cut full with sturdy hidden elastic band. Peak is designed for glare protection with a Nylon mesh net in front on top of cap to allow for air circulation. ONE SIZE FITS ALL.

Style #**1091** — White Dacron polyester taffeta
**$2.75 ea.** **$32.00 dz.**

**MEN'S CAP**— crown is set with a finished Nylon bound seam to prevent linting. Nylon tie tapes make cap adjustable to all sizes. No raw edges. ONE SIZE FITS ALL.

Style #**1098** — White Dacron polyester taffeta
Style #**1094** — Same as #10982 but with grippers
**$.75 ea.** **$8.75 dz.**

**SNOOD CAP**—Ideally suited for those cases in which complete hair coverage is required. Comes with elasticized snood. ONE SIZE FITS ALL.

Style #**1097** — White Dacron polyester taffeta
**$.95 ea.** **$10.50 dz.**

**HOOD** — Designed for complete head, neck and upper chest coverage. Slips on and off with ease. Nylon tie tapes hold hood in place ONE SIZE FITS ALL.

Style #**1092** — White Dacron polyester taffeta

**$2.50 ea.** **$28.50 dz.**

**WALKING BOOTS** — Soles are of heavy duty non-slip Nylon tread (ballistic cloth). Non-fatigue elasticized tips hold coveralls or trousers in place with built-in ankle snaps for secure fit.

**Style #1095** White Dacron polyester taffeta

**$3.75 ea.** **$42.00 dz.**

**BOOTS**— Soles of reinforced non-skid plastic. Adjustable stainless steel snap fasteners at top and nylon tie tapes secured at heel to tie over instep. Height 12".

**Style #1096** -White Dacron polyester taffeta

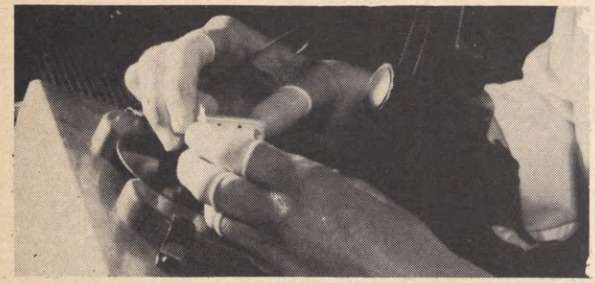
**$4.00 ea.** **$46.50 dz.**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# CLEAN ROOM GLOVES - TEC BRAND

**LARGE QUANTITY QUOTATIONS AVAILABLE**



**No. 48 FINGER COTS** The latex finger cot is one of the most practical and inexpensive ways to control contamination in assembly of delicate components. Manufacturers of products that necessitate freedom from finger-marking, perspiration and dust will find finger cots a tremendous aid in quality-control. Special "dustless" process allows meticulous handling of all fine electronic parts. **Flat (unrolled) cots are "dustless", rolled have minimum amount of talc.** In 10 gr. packages. Sizes: small, medium, large, flat (unrolled), rolled. **Please specify.**

10 gr. . . . . **$10.00** 100 gr. . . . . **$79.50**

Special heavy duty "Green Tip Cots". Less perception than standard.

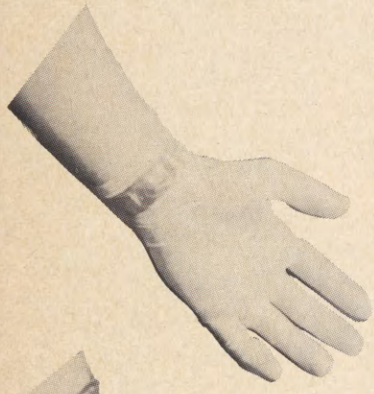
10 gr. . . . . **$11.00** 100 gr. . . . . **$83.00**

**G-60 DISPOSABLE GLOVE** This ambidextrous glove is impervious to most chemicals and is inexpensive lightweight protection. For worker's hand and product. Maximum sensitivity in "Protective Book" dispenser of 100 gloves. Sizes: small 5-7, medium 7-9, and large 9-11.

Pkg. of 100 . . . . . **$3.75**
Pkg. of 100 (5 pkg. lots) . . **3.45**
Pkg. of 100 (10 pkg. lots) . **3.25**
Pkg. of 100 (50 pkg. lots can assort) . . . . . **2.75**

**GS-3 "COMPAR" GLOVE (Poly Vinyl Alcohol)** Impervious To: Fluorine Compounds, Perchloric Acid, Toluene, Toluol, Methyl Ethyl Ketone (M.E.K.), Ethylene Compounds, Halogen Compounds and Trichlorethylene. Will not tarnish metal parts (no traces of sulphur). Curved finger styling. Not recommended for use with water, water solutions or steam. (14" long, 012" thick,

Size 8 & 9
**$10.35 ea. . . . . $108.00/dz.**
Size 10 & 11
**$10.65 ea. . . . . 114.00/dz.**



**CONFORM ALL LATEX GLOVE** Maximum finger dexterity and perfect fit, elimination of hand fatigue (800% Elongation). Snug, rolled cuff for greater protection. Natural feel keeps hands cool and comfortable. Sizes: S/M fits 5-7, M/L fits 7½-9½. Gauge 4-6 mils. Length approximately 10½".

Dispenser Box of 100
100 - 500. . . . . **$9.95**
500 - 1000. . . . . **8.95**

**WTT-300 DISPOSABLE GLOVE (TRU-TOUCH)** Exceptional dexterity and tactile perception. Soft, pliable vinyl, durable and lightweight. Tensile strength of 1,400 lb. psi. Elongation of 400%. Soft Green. Ambidextrous. (12" long, and .0065" thick, sizes: Small, Medium, Large, X-Large. Specify).

Dispenser (300, one size). **$21.85**
3 Dispensers (can assort sizes) . . . . . **63.00**

**NEOPRENE INDUSTRIAL GLOVES**
Exhibits great resistance to ozone, weathering, heat, vegetable oils, petroleum products, animal fats, and chemicals. Tests on humans have shown that Neoprene is almost completely devoid of toxic effects. Soft cotton flock lining. Curved finger styling. .018" thick and 12" long.

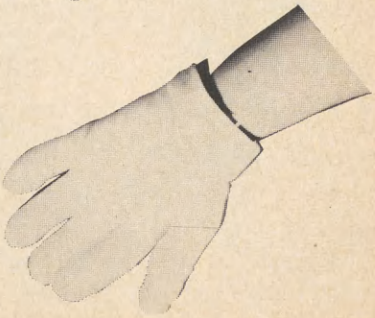
**86-Fh** Size 7-8-9 . . . . . **$ 9.95**
**86-Fh** Size 10-11. . . . . **11.95**

**G-611 DISPOSABLE GLOVE ("TRU-TOUCH")** Ambidextrous. Made of Poly-vinyl chloride with thickness of .006", very highly sensitive. Perfect for very small parts handling. Superior fit without "snap" or constriction of latex and tensile strength of 1,000 pounds, p.s.i., Sizes: Small 6-6½, Medium 7-8, Large 8½ up.

Dispenser (25 gloves) . . . . **$2.50**
4 Dispenser (1 shelf pkg.) (100 gloves) . . . . . **7.50**
1 Case (6 shelf pkg.) (600 gloves) . . . . . **39.00**

**G-119 SURGICAL-TYPE GLOVE** Inexpensive, tissue thin (.009" thick) glove. Greater comfort and flexibility, which, along with its high tensile strength, make it ideal for precision assembly or production. Sizes: 6½, 7, 7½, 8, 8½, 9. Wt. per doz. 1¼ lb.

Dozen pair. . . . . **$ 5.25**
Gross pair . . . . . **56.20**



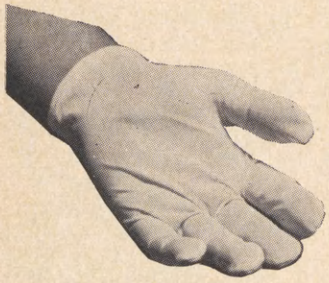
**HO29P HOT MILL GLOVES** 24 oz. (12 oz. outside, 12 oz. lining).

Dozen pair. . . . . **$11.50**
Dozen pair (6 dz. lots) . . **10.95**
Dozen pair (12 dz. lots). . **9.95**

# CLEAN ROOM GLOVES - TEC BRAND

**LARGE QUANTITY QUOTATIONS AVAILABLE**

**TECHNI-TOOL** now offers the most complete line of hand coverings available for the aero-space industry. Thoroughly researched, and adhering strictly to pertinent government specifications, these products will aid materially in reducing problems inherent in the latest "clean room" assembly and production methods. We hope this comprehensive "finger-tip guide" will help you in your daily decision making in purchasing. Free consultation on special problems is readily available by writing or calling TECHNI-TOOL.

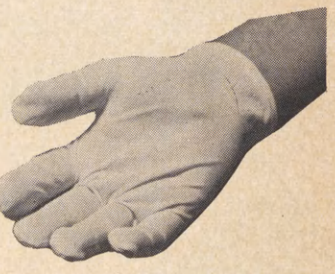


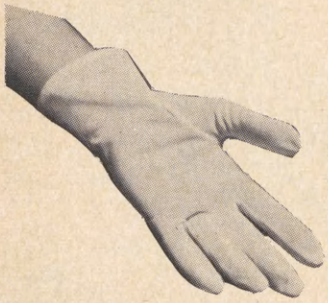
**G-95 UTILITY GLOVE** An all purpose glove for industrial purposes where the contamination factor is not critical. 100% soft, premium cotton, an economical throwaway hand-covering.

Dozen pair . . . . . $3.50
Dozen pair (6 dz. lots) . . . 2.75
Dozen pair (12 dz. lots) . . . 2.50

**G-100 GLOVE** 100% nylon tricot and reversible to fit either hand. A quality glove designed to give fullest contamination protection at least expense. Washable. White in men's, women's sizes. Specify.

Dozen pair . . . . . $7.50
Dozen pair (6 dz. lots) . . . 6.75
Dozen pair (12 dz. lots) . . . 5.95





**G-300 GLOVE** A full fashioned straight wrist glove of fine construction for greater durability. Sizes: small, medium or large. Specify men's or women's models.

Dozen pair . . . . . $10.50
Dozen pair (6 dz. lots) . . 9.75
Dozen pair (12 dz. lots) . . 9.00

**G-200 GLOVE** Excellent fitting, durable stretch glove. Sized for men or women. Completely made of 100% stretch nylon. Fits either hand. Specify men's, women's.

Dozen pair . . . . . $12.95
Dozen pair (6 dz. lots) . . 12.25
Dozen pair (12 dz. lots) . . 11.25

**G-400 VINYL LAMINATED LISLE** Smooth thin vinyl coating for toughness with utmost sensitivity and with the wing thumb feature. Vinyl laminated front. Ventilated back with bound wrist. Women's and men's sizes.

Dozen pair . . . . . $11.50
Dozen pair (6 dz. lots) . . . 10.95
Dozen pair (12 dz. lots) . . 9.95

**G-800 VINYL GLOVE** Dust free. Ambidextrous. Sulphur-free vinyl compound is used to produce an ultra-thin vinyl glove. Velvetized finish inside, makes glove slip on and off easily. One size will fit all.

Per 100 . . . . . $9.50
Per 100/5 pkg. lots . . . . . 9.00
Per 100/10 pkg. lots . . . . . 8.50

## "CLASS FOUR" LINE DESIGNED TO MEET FEDERAL STANDARD NO. 209

**G-600 GLOVE** Least expensive "Class Four" hand covering. Full back ventilation, rolled hems, plastic coated palms and substantially lint free. Full tailored of 100% monofilament nylon. Men's or women's. Specify.

Dozen pair . . . . . $13.95
Dozen pair (6 dz. lots) . . 13.20
Dozen pair (12 dz. lots) . . 12.50

**G-700 GLOVE** The ultimate in "Class Four" protection. Fully tailored with a sheath extending well up the wrist to overlap lab coat or jacket for maximum control of lint, dust or hair contamination. Approximately 11" in length. Specify men's or women's model.

Dozen pair . . . . . $16.95
Dozen pair (6 dz. lots) . . 15.75
Dozen pair (12 dz. lots) . . 14.75

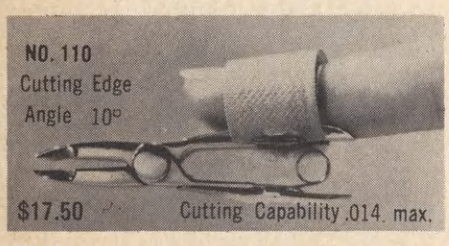
ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

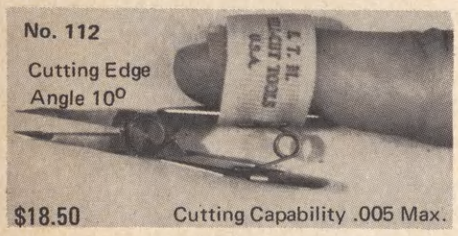
# DELICUT - CUTTERS - TWEEZERS - POSITIONERS

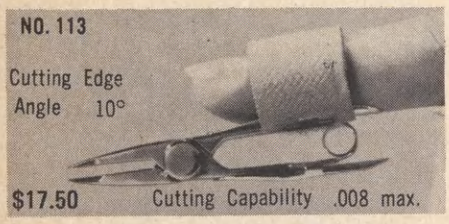
## a unique concept in miniature component assembly tools

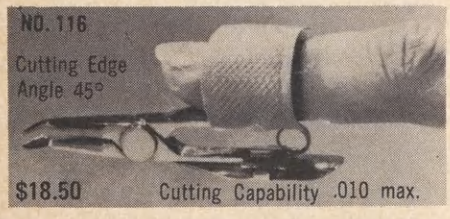
The Deli-Cut line of miniature electronic assembly cutters, tweezers and positioning tools was developed to reduce assembly time required for miniaturized components and circuitry, while increasing worker accuracy and output. Deli-Cut tools attach comfortably to the assembler's fingers by means of an adjustable Velcro band. Actuated by the familiar combination of thumb against finger, Deli-Cut tools provide unparalleled control and feel and eliminate the need to constantly pick up and put down the needed tools. Because Deli-Cut tools are so efficiently sized, one hand can be equipped with two or more tools with no interference whatsoever. While working under magnification, assembler eye fatigue is sharply reduced because she no longer has to focus and re-focus her eyes as different tools are used. Velcro bands are 100% nylon, reversible and replaceable.

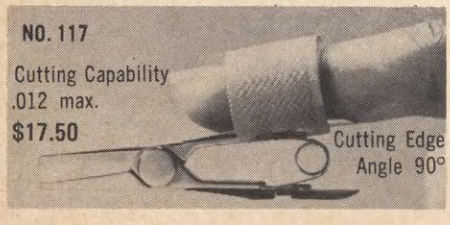
**CUTTERS:** Quality tool steel hardened to R/C 60-62. New adjustable rivet maintains hinge clearances. Diamond hand-honed cutting edges for long life. Adjustable bands fit comfortably and securely.



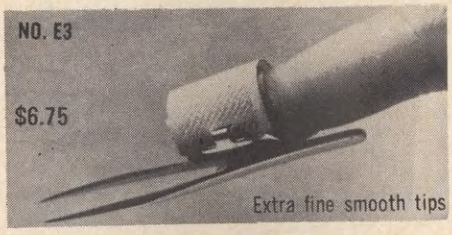



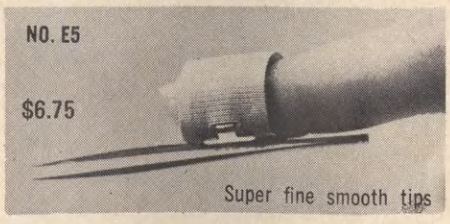



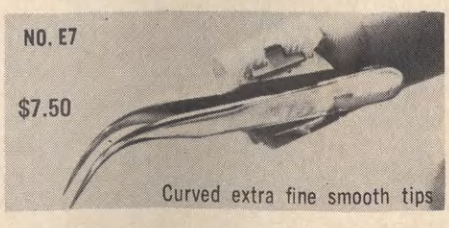



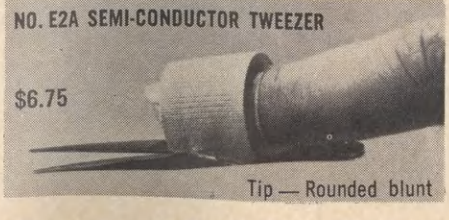

**QUANTITY DISCOUNTS:** 1–9, 0%; 10–24, 3%; 25–49, 5%; 50–99, 7%; 100 & over, 10%.

**TWEEZERS:** Smooth matched inside tips. Satin polish finish for cleanliness, handling ease. Non-magnetic stainless steel construction.



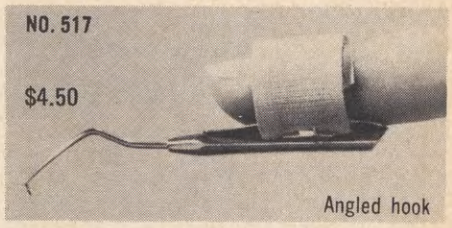



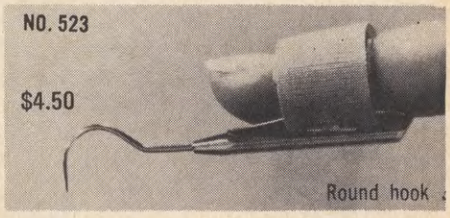



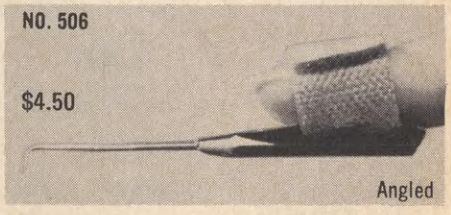



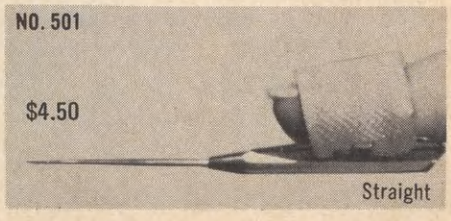

**REPLACEMENT PARTS:** #2014 Velcro Strap $.50; #2016 Springs $.50. Replacement parts not subject to quantity discount.

**POSITIONERS:** Needle sharp points for delicate work. Stainless steel construction for strength, acid resistant.

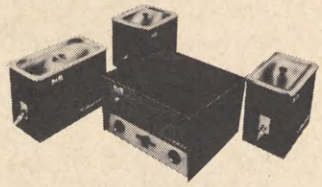


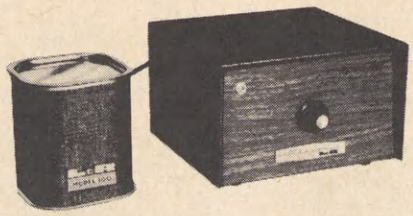
# ULTRASONIC CLEANERS



**ULTRA-CLEEN #430**—The #430 system consists of a separate generator and your choice of three transducerized tank (#431T: 8″ x 7⅛″ x 6″; #432T: 9⅜″ x 5⅜″ x 6″; #433T: 11¾″ x 6″ x 6″. Stable independent frequency circuit complete with automatic timer, peaking control and pilot light. Generator dimensions: 14¼″ x 14″ x 9″.

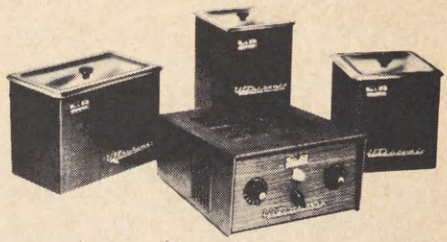
Generator with following tanks

**431T** ..... **$380.00**
**432T** ..... **370.00**
**433T** ..... **380.00**



**ULTRA-CLEEN #100** — Peak ultrasonic power packed in this most rugged, compact unit. Simple to operate—no tuning required. Stainless steel tank capacity ½ quart with (I.D.) 3½″ x 3½″ x 2⅝″. Generator (O.D.) 7⅜″ x 7⅜″ x 4½″.

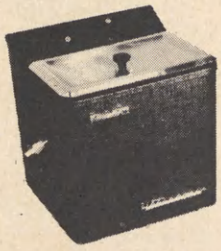
**$89.50**



**ULTRA-CLEEN #210** — Separate generator and three available transducerized tank sizes (#211T: 5⅜″ x 6″ x 4″, #212T: 5⅜″ x 6″ x 6″, #213T: 5⅜″ x 9⅜″ x 4″). Automatic timer and tuning control. Generator dimensions: 10″ x 2″ x 5¾″.

Generator with following tank

**211T** ..... **$190.00**
**213T** ..... **225.00**
**212T** ..... **200.00**



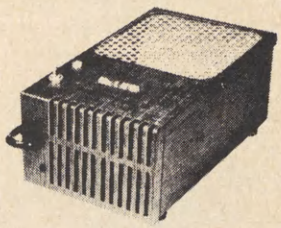
**ULTRA-CLEEN #320LU**—A completely self-contained unit. 3⅜ quart capacity, stainless steel tank measures: 9⅜″ x 5⅜″ x 4″. Automatic electric timer and tuner pilot light. Outside dimensions: 11½″ x 10″ x 11″. ..... **$295.50**

## L&R SOLUTIONS

**L&R #112** — Waterless Cleaning Solution (ammoniated). Designed for precision metal parts ferrous and non ferrous.
**L&R #222** — Waterless Cleaning Solution (ammoniated). Same as above without ammonia . . . longer lasting.
**L&R #1** — Powerful wetting and sequestering ability (cone).
**L&R Hydrosonic** — Removes water soluble soils, fingerprints, water-based compounds-concentrate.
**L&R Ultrasonic Rinsing Solution** — Drys rapidly without spotting or streaking, for use in conjunction with #112 & 222 solutions.

**#112** .....$2.50/gal.—**$11.25/5 gal.**
**#222** .....$3.50/gal.—**$16.25/5 gal.**
**#1** .....$3.00/pt. —**$15.00/gal.**
**Rinsing Solution** .....$3.50/gal.—**$15.00/5 gal.**
**Hydrosonic Solution** ..$2.50/pt. —**$12.50/gal.**

Other models of L&R Ultrasonic Cleaners are available. Complete information will be supplied upon request.

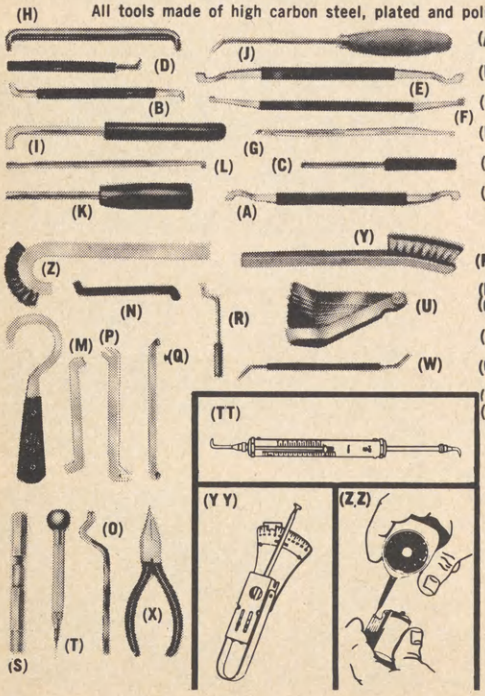


## NEW! L & R DRYER

Compact • Safe • Efficient drying unit
Perfect for drying all type of small parts, and for use in clean rooms. Air flows upward.
**Dimensions:** 10″ x 6″ x 4″
**Heating Area:** 28 sq. in.
**Temperature:** 110°F.
**$27.50** F.O.B. PHILA.

# RELAY SPRING ADJUSTING TOOLS

All tools made of high carbon steel, plated and polished, heat treated and tempered to exact requirements. Insulated handles for work on live equipment.




(A) SA-2 Offset type, 6½″ long, saw slot both ends .032″ ..... $2.48
(B) SA-6A Cross & lengthwise slots, 5½″ long. Slot .030″ ..... $2.45
(C) SA-7 One end saw slot straight 4½″ long. Slot .015″ ..... $1.35
(D) SA-8 Heavy duty. Round head, 4½″ long. Cross slot .045″ ..... $2.48
(E) SA-16 Offset type 6½″ long, saw slot both ends .018″ ..... $2.40
(F) SA-17 Offset slim type. Saw slot both ends .023″ 8″ long ..... $2.95
(G) SA-20 Opposite-faced thin headed slots. 7″ long Slots .022″ ..... $3.50
(H) SA-24 Crosswise slots. 5½″ long, Slots .040 & .028″ ..... $2.88
(I) SA-25 Angled. 6½″ long. Saw slot .032″ ..... $2.48
(J) SA-143 Bent, 8″ long, Saw slot .025″ ..... $2.28
(K) SA-163 Straight driver type, 5½″ long, cross slot .038″ ..... $2.19
(L) SA-175 Closely set saw slot, 5¼″ long, slot .031″ ..... $2.82

## RELAY & INSTRUMENT TOOLS

(M) AB-21 Adjuster, Armature, 4″ long, slot width each end .110″ ..... $1.30
(N) AB-20 Adjuster, Armature, 3 slots .114″ ..... $1.40
(O) SB-22 Adjuster, Armature stop, 5″ long, slots .032″ ..... $1.48
(P) S-187 Adjuster, double dog, 4″ long, slot both ends. 3/32″ ..... $1.64
(Q) S-201 Adjuster, aid spring, 4¼″ long, slot both ends .034″ ..... $2.49
(R) J-34 Adjuster, pole piece, 3″ long ..... $1.68
(S) FW-24 Hex wrench, double end, with screw driver, 4¾″ long, 7/32″ and ¼″ hexagon $2.70
(T) J-23 Screwdriver, guide pin 4½″ long ..... $3.60
(U) T-255 Angled thickness gauge, 9 blades .009″ to .026″ ..... $2.24
(V) BC-23 Bank cleaner, abrasive surface 1½″ dia. 6″ long ..... $2.49
(W) S-457 Wire & spring aid, bent 30° opposite ends, 5½″ long ..... $1.38
(X) PL-8 Spring duck bill plier, 5½″ long..... $4.40
(Y) WB-65 Nickel silver wire brush, 9″ long ..... $1.95
(Z) HB-75 Curved hair brush. Radius 1¾″, Length 8″ ..... $2.35

### SPRING TENSION GAUGES (YY)

Precision-made to accurately determine the setting, testing and adjusting of relay spring tension and other delicate electronic tensioned movable components.

G-10 0-10 grams ..... $6.48
G-30 0-30 grams ..... $6.48
G-50 0-50 grams ..... $6.48
GP-50 0-50 grams (preset) ..... $7.48
G-150 0-150 grams ..... $6.48
G-700 0-700 grams ..... $7.96

### PUSH—PULL TENSION GAUGES (TT)

GPP-1 0-1000 grams ..... $29.80
GPP-2 0-110 grams ..... $14.50

### DYNAMOMETERS (ZZ)

Dial gauges to determine force required to actuate delicate mechanisms.
- Spring tension indicator
- Verification of contact blades.
- Stylus pressure gauge

GD-5 5-50 grams ..... $13.55
GD-15 15-150 grams ..... $13.55
GD-100 100-1000 grams ..... $31.25

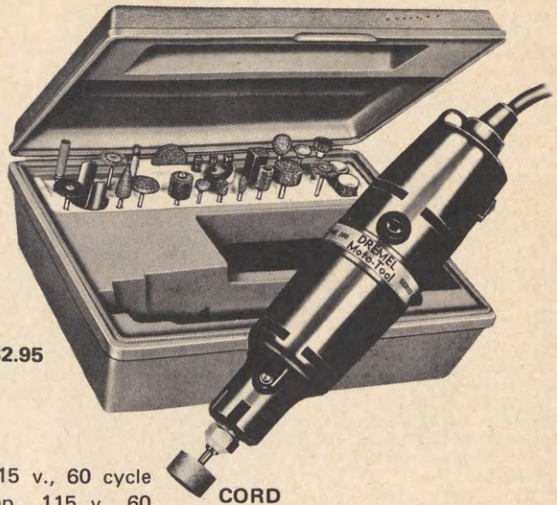


ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA

# DEBURRING AND GRINDING TOOLS

## DREMEL MOTO–TOOL INDUSTRIAL GRINDER
WITH CONSTANT TORQUE, PERMANENT MAGNET MOTOR

Moto–Tool has a unique full wave rectifier circuit. Has more than twice the power of previous models. Will not stall under normal load. For its size, it's the fastest, most powerful electric hand grinder ever built! Electrically welded armature is dynamically balanced for vibration free operation. High velocity fan assures cool operation. Features a handy hanger hook and a pencil grip extension for fine detailed work. Ideal for wire range of die and mold grinding polishing, production deburring and general duty in the tool room and model shop. Perfect for use with small grinding wheels and solid carbide cutting tools.




**KIT . . . . $32.95**

**MOTOR**
#260 .5 amp., 115 v., 60 cycle AC. #270 .8 amp., 115 v., 60 cycle AC. #280 .9 amp., 115 v., 60 cycle AC.

**SPEED**
No load speed. 30,000

**BEARINGS**
Available with oil–impregnated bronze bearings or ball bearing construction.

**CORD**
6 foot, 3 conductor cord

**COLLET SIZES**
1/8", 3/32", 1/16", 1/32".

**WEIGHT**
#260 Moto–Tool only 11 ozs. Complete kit, 2½ lbs. #270 Moto-Tool only 11 ozs. Complete kit 3 lbs.

## PALM SIZE SUPER COMPACT MOTO–TOOL
WITH THE REVOLUTIONARY CONSTANT TORQUE PERMANENT MAGNET MOTOR

Torque drop–off is so gradual it's exceptionally stall resistant. Lightweight and compact it handles easily as a pencil. Performs intricate, detailed work with pinpoint accuracy. Electrically welded armature is dynamically balanced for vibration free operation. Large air vents and high velocity fan assure cool operation. Features a handy hanger hook and finger grip extension for extra convenience. Can be used on any material, wood, steel, non–ferrous metals, glass ceramics.

**#260 MOTO–TOOL** with oil-impregnated, bronze bearings, 1/8" collet and collet wrench. **$22.95**

**#261 MOTO–TOOL KIT** complete with #260 Moto–Tool, 34 accessories including: high speed steel cutters, grinding wheels, wire and bristle brushes, rubber polishing tip, sanding discs, drum sander and sanding bands, mandrels, dressing stone, finger grip extension, collet wrench, 1/8", 3/32", 1/16" and 1/32" collets in molded polyethelene case. **$32.95**

**#270 MOTO–TOOL** with oil-impregnated bronze bearings, 1/8" collet and collet wrench. **$29.95**

**#280 MOTO–TOOL** Same basic unit as #270, but with ball bearing construction. **$39.95**

**#271 MOTO–TOOL KIT** Same basic kit of accessories as #261 but with #270 bronze bearing Moto–Tool. **$39.95**

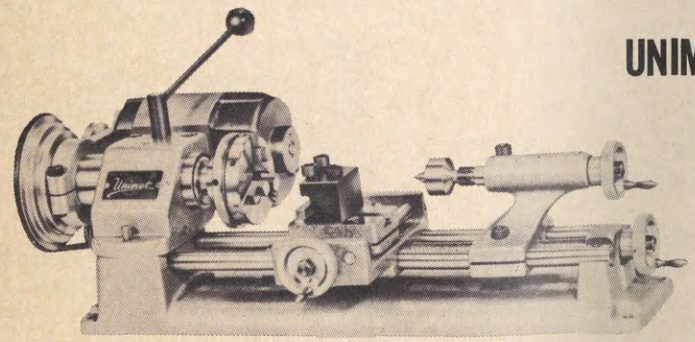
**#281 MOTO–TOOL KIT** Same basic kit of accessories as #261 but with #280 ball bearing Moto-Tool. **$49.95**

**#223 UNIVERSAL STAND**
A practical bench accessory. Leaves both hands free for holding the work. Can be quickly adjusted to hold the Moto-Tool at any angle. Has quick action clamp for receiving and releasing the Moto-Tool. The heavy cast iron base will not tip over. Requires adapter #55090 when used with #260 Moto-Tool. . . . . **$8.50**

**#224 SHAPING TABLE**
Can be mounted vertically on Moto-Tool when used with the Universal Stand. When inverted it provides accurate control for routing and depth grinding. Table can be raised or lowered to regulate depth of cut. . . . . **$4.50**

**#225 DRILL PRESS**
A handy 12" high drill press, perfect for precision drilling or routing. Ideal for model makers. Table can be raised or lowered and locks in any position with accurate depth adjustment. Requires adapter #55090 when used with #260 Moto-Tool. Drill press can be used for routing. Depth of cut easily requlated by raising or lowering the table. . . . . **$15.00**

## UNIMAT



5 basic shop machines in one compact, precision tool. Turn, face, bore, grind, saw, mill, thread, drill sand, buff, divide. Hundreds of jobs on this one multi-purpose machine. Change set-ups in seconds. Headstock rotates 360°, removes from bed for vertical use. Ball bearing spindle is accurate to .0005". 11 speeds (900 - 7200 rpm) belt driven by 1/10 hp motor. Lathe swings 3", takes 6.9" between centers. Drill capacity 6¼". Drills to center of 6¼" circle. Spindle feeds 5/8". **$139.50**

**Power Carriage Feed (1290).** Feeds .0008" per rev. . . . . **$21.00**
**Circular Saw (1240).** 6" x 8" table. Uses blades to 3½". . . . . **16.25**
**Headstock Raising Block (1311).** Permits use of saw attachment above. . . . . **2.50**
**Milling Table (1210).** 3" x 5". Holds work for milling and drilling. . . . . **13.50**
**Steady Rest (1040).** Holds 1½" bars, tubes, for machining. . . **10.50**
**Lathe Chucks:** 3-Jaw Universal **(1001).** 2¼" capacity. . . . . **26.00**
**4-Jaw Independent (1002).** 2¼" capacity. . . . . **24.75**
**Tool Bit Set (1100).** Six 1/4" HSS basic lathe tools. . . . . **11.50**
**Vise (1010).** Fits on cross slide. Cap. 1 1/8". V-milled jaws. . **10.00**

# INDEX


## A

**Abacus Micro Positioners** . . . . . 101
Abrasive Pencil . . . . . .85
Accessory Kits . . . . . .90
**Air Actuated Cutters** . . . . . .63
Air Actuated Lead Bender . . . . . .62
Air Gun . . . . . 104
Airetool Grinders . . . . . .89
Akro Mils Cabinets . . . . . .19
Alloy Detector . . . . . .99
**Analyzers, Torque, Cleco** . . . . . .54
Anti-Wicking Tweezers . . . . . .29
Applicators, Wooden . . . . . 104
Aron Alpha Cement . . . . . .84
**Assembly Kits** . . . . . .77
Assembly Lamps, Luxo . . . . . .46
Assembly Lamps, Miniature . . . . . .45
Assembly Tweezers, U.S.A. . . . 23, 24, 26, 27
Automatic Punch . . . . . .83

## B

Ball Joint Inspection Mirrors . . . . . .36
Basic Assembly Kit . . . . . .77
Bench Storage Racks . . . . . .95
Bend-Eze Lead Bender . . . . . .62
**Beryllium Copper Tools** . . . . . .87
Bio-Clean Work Station . . . . . 106
Bits & Drivers, Torque . . . . . .55
Blades, Saw . . . . . .86
Blades, X-Acto . . . . . .78
Blister Packaging Units . . . . . .37
**Boots, Clean Room** . . . . . 107, 108
Boots, Plastic . . . . . 104
Bottles, Dispensing . . . . . 104
**Box Joint Pliers** . . . . . 20, 22
Breadboard, Prototype . . . . . .60
Brush, Adjustable . . . . . .83
Brushes, Rotary . . . . . .93
Burnisher, Contact . . . . . .83
Burs, Carbide . . . . . .91

## C

**Cabinets, Storage** . . . . . .96
Cable Strippers . . . . . .60
Caliputer . . . . . .86
**Caps, Clean Room** . . . . . 107, 108
Carbide Burs . . . . . .91
Carvers & Spatulas . . . . . .81
Casting Syrup . . . . . 100
Cement, Aron Alpha . . . . . .84
**Chassis Fixtures, Dytex** . . . . . .76
Circon Soldering System . . . . . .72
Circuit Board Holder, "Pana" . . . . . .75
**Clean Room Apparel** . . . . . 108
Clean Room Boots . . . . . 107, 108
Clean Room Caps . . . . . 107, 108
Clean Room Gloves . . . . . 107, 108, 110
**Clean Room Mat, Ryno** . . . . . 106
**Clean Room Products, Texwipe** . . . . . 103
Clean Room Wipers . . . . . 100
Cleaners, Abrasive . . . . . .85
**Cleaners, Ultrasonic** . . . . . 102
Clearlite, Magnifier . . . . . .48
**Cleco Torque Screwdrivers** . . . . . .54
Co-Axial Wire Strippers . . . . . .58
Coats, Mens . . . . . 107
**Colbert PanaVises** . . . . . .75
Comfort Mats, Foot . . . . . 104
Compar Gloves . . . . . 109
**Comparators, Optical** . . . . . 43, 48
Component Lead Straightener . . . . . .62
Conductalite . . . . . 100
**Conductive Epoxy** . . . . . .99
Conductive Silicone . . . . . .99
Contact Cleaner . . . . . .82
Container, Pressure . . . . . .82
Cots, Finger . . . . . 109
Coveralls, Clean Room . . . . . 107
Cotton Swabs . . . . . 104
Contact Burnisher . . . . . .83
Cramolin . . . . . .82
Cups, Vacuum . . . . . .38
Cut-N-Crimp Pliers . . . . . .10
**Cut-N-Form Lead Bender** . . . . . .61
Cutters, Box Joint . . . . . .20
Cutters, Carbide Blade . . . . . .10
**Cutters, Deli-Cut** . . . . . 111
Cutters, End Stop . . . . . .3
**Cutters, E.T.M.** . . . . . 3, 4
Cutters, Flat Pack . . . . . .3
Cutters, Flush Oblique . . . . . .17
Cutters, Rotary . . . . . .91

## D

**DeBurr, Abrasive Pencil** . . . . . .85
DeBurring Points . . . . . .91
DeBurring Tools, Electric . . . . . .88
DeBurring Tools, Pneumatic . . . . . .89
**Deli-Cut Cutters** . . . . . 111
Deli-Cut Positioners . . . . . 111
Deli-Cut Tweezers . . . . . 111
Delrin Pliers . . . . . .12
Demagetizer . . . . . .59
Desoldering Irons, Endeco . . . . . .73
**Desoldering Irons, Vanguard** . . . . . .70
Desoldering Kits . . . . . .64
Desoldering Pump . . . . . .66
Detector Alloy . . . . . .99
Diagonal Cutters . . . . . .10, 17
**Diagonal Cutters, Lindstrom** . . . . . .16
Dial Micrometer . . . . . .86
Diamalloy Pliers . . . . . .13, 14
Diamond Files . . . . . .81
**Diamond Points** . . . . . 92, 93
Diamond Spatula . . . . . .83
Diamond Wheels . . . . . .92
**Die Grinders** . . . . . .89
Die Grinding Points . . . . . 91, 93
D.I.P., Inserter . . . . . 114
Dispatula . . . . . .99
Dispensers . . . . . .97
Dispensers, Button Control . . . . . .97
**Dispensers, Epoxy** . . . . . .98
Dispensers, Foot Controlled . . . . . .98
Dispensers, Micro . . . . . .98
Dispensing Bottles . . . . . 104
**Disposable Gloves** . . . . . 109
Disposable Spatula . . . . . .99
Drawer, Scissors . . . . . .32
Drill Sets, Tiny Tap . . . . . .51
Drivers, Ball End Allen . . . . . .56
**Dry Box** . . . . . 106
Dry Box Gloves . . . . . 106
Dust Box . . . . . 106
**Dytex Chassis Fixtures** . . . . . .76
Dytex Positioners . . . . . .76
Dytex Vises . . . . . .76

## E

Electric Engraver . . . . . .80
Electric Grinders . . . . . .89
Electricians Scissors . . . . . .33
**Electronic Tool Set** . . . . . .77
Endeco Desoldering Irons . . . . . .73
Engines, Flexible Shaft . . . . . .88
Engraver, Electric . . . . . .80
Epoxy Conductive . . . . . .99
Epoxy Dispensers . . . . . 97, 98
Eremadium Pliers . . . . . .18, 20
Esico Soldering Irons . . . . . .71
Etcher, Etch-O-Matic . . . . . 102
**Extractor, I.C. #4916** . . . . . 114

## F

Facsimilie . . . . . 100
**Fashion Seal Uniforms** . . . . . 108
Fiber Optics Kit . . . . . .43
Fiberglass Brush . . . . . .83
**Filament Holders** . . . . . .29, 34
Filament Scissors . . . . . .31, 33
Files . . . . . .81
Film Insulation Stripper . . . . . .57
**Finescale Optical Comparator** . . . . . .41
Finger Cots . . . . . 109
Flameless Torch-Master . . . . . .74
Flash-O-Lens Magnifiers . . . . . .40
**Flat Pack Lead Bender** . . . . . 105
Flex-Lite . . . . . .43
Flex Vise . . . . . .80
Flexible Finger . . . . . .80
Flexible Shaft Machines . . . . . .88
**Flipper** . . . . . .31
Fluid Dispensers . . . . . 104
Flush Cutters . . . . . .11
Floor Mat, Ryno . . . . . 106
Foam Cubes . . . . . 103
Foam Wipes . . . . . 103
**Foot Comfort Mats** . . . . . 104
Footguards, Plastic . . . . . 104
Force Gauge . . . . . .86
Foredom Grinders . . . . . .88
Foredom Grinding Points . . . . . .90
Frame Saw . . . . . .86
Frocks, Men . . . . . 107

## G

Gauge, Force . . . . . .86
Gear Reduction Motors . . . . . .88
General Assembly Tweezers . . . . . .24, 27
**Generators, Vacuum** . . . . . .38
Glass-Filled Tweezers . . . . . .30
**Gloves, Clean-Room** . . . . . 107, 110
Gloves, Clean-Room, Class IV . . . . . 110
Gloves, Compar . . . . . 109
Gloves, Conform . . . . . 109
Gloves, Disposable . . . . . 109
Gloves, Dry Box . . . . . 106
Gloves, Hot Mill . . . . . 109
Gloves, Neoprene . . . . . 109
Gloves, Surgical . . . . . 104
Gloves, Tru-Touch . . . . . 109
Gloves, Utility . . . . . 110
Gloves, Vinyl, Dust Free . . . . . 110
Glue, Aron Alpha . . . . . .84
Gowns, Clean Room . . . . . 108
Grinding Tools . . . . . .88
Guns, Heat . . . . . .74

## H

**Hand Magnifiers** . . . . . .40
Handee Grinder . . . . . .89
**Harwil Lead Benders** . . . . . .61
Heat Guns . . . . . .74
Heat Sinks . . . . . .29
Hemostats . . . . . .34
Hex Drivers . . . . . .49
**Holders, Filament** . . . . . .35
Holders, Lock Type . . . . . .34
Hot Plate . . . . . 105

## I

I.C. Desoldering Kit . . . . . .64
**I.C. Extractor** . . . . . 114
Ideal Wire Strippers . . . . . .59
**Illuminated Magnifiers** . . . . . .48
Industronic Pliers . . . . . .7, 8, 9
Inhibitor, Ruse (V.C.I.) . . . . . 100
Inserter, D.I.P. . . . . 114
Inspection Comparator . . . . . .41
Inspection Magnifiers . . . . . .40
Inspection Mirrors . . . . . .38
Instrument Trays . . . . . .86

## J

**Jeweler's Screwdrivers** . . . . . .50
Jig, Soldering . . . . . .80
Jig, Third Hand . . . . . .80
Job Trays . . . . . .86

## K

Kimwipes . . . . . 100
Kits, Grinding Points . . . . . .90
Kit, Soldering Aid . . . . . .83
**Kits, Tool** . . . . . .77
Klearmount . . . . . 100
Knife Sets . . . . . .79
Knives . . . . . .79
Knives, X-Acto . . . . . .78

## L

L.P.S. Metal Protector . . . . . .85
Lab. Coats . . . . . 108
Lab. Hot Plate . . . . . 105
Lab. Hot Plate, Nucerite . . . . . 105
Lab. Mixer, Stirrer . . . . . 105
Laminar Flow Cabinet . . . . . 106
**Lamps, Luxo** . . . . . .46
Lamps, Miniature . . . . . .44
**Lead Bender - Flat Pack** . . . . . 105
Lead Benders, Bend-Eze . . . . . .62
Lead Benders, Cut-N-Form . . . . . .61
Lead Bender, Flat Pack . . . . . 114
Lead Bender, Snip-N-Strip . . . . . .61
**Lead Bender, Speedy Bend** . . . . . .61
Lead Ejector . . . . . .60
Lead Former . . . . . .83
Lead Straightener . . . . . .62
Leak Detector . . . . . .86
Lindstrom Pliers . . . . . .15, 16
Linen Tester . . . . . .42
Little Dandy Soldering Iron . . . . . .68
Lock Plier . . . . . .83
Lock Type Heat Sinks . . . . . .34
Locking Parts Holders . . . . . .34
Long Nose Pliers . . . . . .8
Loupes, Behr Spectacle . . . . . .39
**Loupes, Eye** . . . . . .39
Loupes, Eyeglass . . . . . .39
Loupes, Headband . . . . . .42
Luxo Lamps & Magnifiers . . . . . 46, 47

## M

Magic Tip Screwdrivers . . . . . .49
Magna-Drivers . . . . . .54
Magnetic Stirrer . . . . . 105
Magnetic Tape Head . . . . . 103
**Magnifiers, Eye** . . . . . .39
Magnifiers, Flexible Arm . . . . . .48
Magnifiers, Illuminated . . . . . .48
Magnifiers, Lamp . . . . . .44
Magnifiers & Lamps . . . . . 45, 46, 47
Magnifiers, Measuring . . . . . .43
Magnifiers, Pocket . . . . . .42
**Master Heat Guns** . . . . . .74
Mats, Foot Comfort . . . . . 104
Measuring Magnifier . . . . . .43
Measuring Microscopes . . . . . .40
Mechanical Screw Starters . . . . . .50
**Mechanical Wire Strippers** . . . . . .59
Metal Protector, L.P.S. . . . . .85
**Micro Assembly Kit** . . . . . .77
**Micro Assembly Tweezers** . . . . . .26
Micro Duster . . . . . 103
Micro Knives . . . . . .79
Micro Pliers . . . . . .19
Micro Positioners . . . . . 101
Micro Probe . . . . . .83
Micro Screwdrivers . . . . . 50, 51
Micro Spatulas . . . . . .81
**Micro Tweezers** . . . . . 23, 25
Microflame Torch . . . . . .94
Micromadium Pliers . . . . . .19

# INDEX


Micrometer, Dial . . . . . .86
Microscopes, Measuring . . . . . .40
Midget Burs . . . . . .91
Midget Die Grinders . . . . . .89
Midget Pliers . . . . . 8
Midget Wrenches . . . . . .85
Minearscope . . . . . .86
Miniature Lamps . . . . . .45
**Miniature Screwdriver Kits** . . . . . .53
Miniature Vises . . . . . .80
Miniature Wrenches . . . . . .56
**Mirrors, Inspection** . . . . . .38
Mixer, Heater, Lab. . . . . .105
Mounted Diamond Points . . . . . .93
Mounting Materials (Klearmount) . . . . . .100

## N

Needle Files . . . . . .81
**Needles, Dispensing** . . . . . .98
Nippers . . . . . .32
No-Nik Wire Strippers . . . . . .58
Nut Drivers, Beryllium . . . . . .87
Nutdriver, 4 in 1 Adjustable . . . . . .56
Nutdrivers, Magna . . . . . .54
**Nutdriver Kits, Xcelite** . . . . . .52
Nylon Lead Former . . . . . .83

## O

"O" Sticks . . . . . .104
Offset Screwdrivers . . . . . .83
Opti Cloth . . . . . .103
Optical Comparator . . . . . .41, 48
**Optical Inspection Magnifiers** . . . . **40, 42, 43**
**Optiman Work Stations** . . . . . .95
Optivisor . . . . . .42
Orangewood Sticks . . . . . .104
Oryx Irons . . . . . .73

## P

**Pana Vises** . . . . . .75
Parts Cabinets . . . . . .96
**Parts Holders** . . . . . **34, 35, 86**
Parts Rack, Bench-Type . . . . . .95
Pigtail Former . . . . . .60
**Pin Vises** . . . . . .80
Plier Kits, Lindstrom . . . . . .16
Pliers, Bending . . . . . 4
**Pliers, Box Joint** . . . . . **20, 22**
Pliers, Carbide Blade . . . . . .10
**Pliers, Clean Room** . . . . . 6
Pliers, Compound Action . . . . . .10
Pliers, Connector . . . . . .7
**Pliers, Copaloy** . . . . . .13, 14
Pliers, Cutting . . . . . 4
Pliers, Diamalloy . . . . . .14
Pliers, Electronic . . . . . .14
**Pliers, End Cutting** . . . . . **4, 7, 9**
Pliers, Erem . . . . . .17
**Pliers, E.T.M.** . . . . . **3, 4, 5**
Pliers, Flat Pack Cutter . . . . . 3
**Pliers, Flush Cut** . . . . . **7, 9, 11, 13, 14, 15, 17**
Pliers, Glass Filled . . . . . .12
Pliers, Groove Grip . . . . . 9
Pliers, I.C. Lead Cutters . . . . . .10
**Pliers, Industronic** . . . . . **7, 8, 9**
Pliers, Inserted Tips . . . . . 3
**Pliers, Lead Cutter** . . . . . 3
Pliers, Lindstrom . . . . . .15, 16
Pliers, Long Nose . . . . . 8
**Pliers, Micromadium** . . . . . .19
Pliers, Midget . . . . . 8, 9
Pliers, Module Puller . . . . . 6
Pliers, Offset . . . . . .18
Pliers, Parallel Action . . . . . 8
Pliers, Screw Joint . . . . . .21
**Pliers, Shear Cut** . . . . . **4, 13**
**Pliers, Special Purpose** . . . . . **21, 22**
**Pliers, Stainless Steel** . . . . . 6
Pliers, Supreme . . . . . .15
Pliers, Swiss . . . . . .17
**Pliers, Tip-O-Dyke** . . . . . .18
Pliers, U.S.A. . . . . 9, 11
**Pliers, Utica** . . . . . **10, 11, 12**
Pliers, Vigor . . . . . .20
Pliers, Wiring, Stainless . . . . . 6
**Pneumatic Cutters** . . . . . .63
Pocket Magnifiers . . . . . .42
Points, Diamond . . . . . .92
Points, Die Grinding . . . . . .90
Points, Grinding . . . . . .91
**Portable Vacu-Vise** . . . . . .90
Positioners, Deli-Cut . . . . . .111
Positioners, Dytex . . . . . .76
Positioners, "Pana" . . . . . .75
Positioners, Wilton . . . . . .76
**Pots, Solder, Esico** . . . . . .71
Potting Dispensers . . . . . .98
Power Screwdrivers . . . . . .88
Pressure Sprayers . . . . . .82
Princess Soldering Irons . . . . . .66
Probes, Multi-purpose . . . . . .80
**Probes, Vacuum** . . . . . .38
Protective Sprays . . . . . .82
Prototype Springboard . . . . . .60
**Pumps, Vacuum** . . . . . .37
Punch, Automatic . . . . . .83

## R

Racks, Parts, Bench-Type . . . . . .95
Ray-Ban Loupes . . . . . .39
Relay Tool Kit . . . . . .77
**Resistance Soldering Irons** . . . . . .69
Reticles, Comparator . . . . . .41
Reverse Action Tweezers . . . . . .30
Rotary Wire Strippers, Ideal . . . . . .59
Roxter Assembly Lamps . . . . . 44, 45
Rules . . . . . .83
Ryno Clean Room Mats. . . . . .106

## S

Safety Knives . . . . . .79
Sand Blaster . . . . . .85
Saws, Slitting . . . . . .93
Saw Blades . . . . . .86
Saw Frame . . . . . .86
Scalpels . . . . . .79
**Scissors** . . . . . **32, 33**
Scissors, Angle . . . . . .31
Scissors, Drawer . . . . . .31
Scissors, Filament . . . . . .31
Scissors, Flipper . . . . . .31
**Scissors, Special Purpose** . . . . . .31
Scissors, Stainless Steel . . . . . .31
Scissor Sharpener . . . . . .33
**Screwdrivers** . . . . . .47
**Screwdrivers, Beryllium** . . . . . .87
Screwdrivers, Magic Tip . . . . . .49
Screwdrivers, Magna . . . . . .54
**Screwdrivers, Micro** . . . . . **50, 51**
Screwdrivers, Multi-Purpose . . . . . .56
Screwdrivers, Pocket Type . . . . . .85
Screwdrivers, Offset . . . . . .83
Screwdrivers, Power . . . . . .88
Screwdrivers, Reversible . . . . . .56
**Screwdriver Kits** . . . . . .52
**Screwdriver Kits, Xcelite, Moody** . . . . . .53
Screw Starters . . . . . 50, 56
Scribers . . . . . .51
**Semi-Conductor Tweezers** . . . . . .30
Sharpener, Scissor . . . . . .33
Sharpener Tweezer . . . . . .29
**Shears** . . . . . .32
Shear Cutters . . . . . 4
Shears, Aviation . . . . . .33
Shears, Electrical . . . . . .33
Silicon Conductive . . . . . .99
Skin Pack Units . . . . . .37
Skiver Knives . . . . . .79
Slitting Saws . . . . . .93
**Small Parts Holders** . . . . . .34
Smocks, Clean Room . . . . . .108
Smocks, Womens . . . . . .107
Snap Ring Plier Kit . . . . . .60
Snip-N-Strip . . . . . .61
Snips, Electrical . . . . . .33
Socket Key Sets, Smitty . . . . . .49
Solder . . . . . .84
Solder Gobbler . . . . . .37
Solder Pots . . . . . 67, 71
Solder Pump . . . . . .66
Solder Wick . . . . . .66
Soldering Accessories . . . . . .64
Soldering Aids . . . . . .83
**Soldering Irons** . . . . . .66
Soldering Irons, American Beauty . . . . . .68
Soldering Irons, Circon . . . . . .72
Soldering Irons, Esico . . . . . .71
Soldering Irons Little Dandy . . . . . .68
Soldering Irons, Oryx . . . . . .73
Soldering Irons, Princess . . . . . .66
Soldering Irons, Resistance . . . . . .69
Soldering Irons, Ungar . . . . . 64, 65
Soldering Irons, Wassco . . . . . .69
Soldering Irons, Weller . . . . . .72
Soldering Irons, Zeva . . . . . .67
Soldering Jig . . . . . .80
Soldering Probe . . . . . .83
Soldering Stands, Temperature Regulated . . . . . .68
**Space Control Centers** . . . . . .95
Spatulas . . . . . .81
Spatula, Diamond . . . . . .83
Speedy Bend . . . . . .61
Sprays, Protective . . . . . .82
Sprayers, Pressure . . . . . .82
Springboard . . . . . .60
Spyraline Solder . . . . . .84
Stacking Trays . . . . . .86
Sticks, Orangewood . . . . . .104
Stirrer, Magnetic . . . . . .105
**Stripall Wire Strippers** . . . . . .57
Stripvar Wire Strippers . . . . . .57
Squeez-Eze Cutters . . . . . .63
**Storage Cabinets** . . . . . .96
Surface Comparator . . . . . .48
Swabs, Clean Room . . . . . .103
Swabs, Cotton . . . . . .104
Swedish Pliers . . . . . .20
**Systems, Dispensing** . . . . . .97
**Systems, Vacuum** . . . . . **36, 37**

## T

Tacky Mat . . . . . .106
Tapping Tool . . . . . .85
**Technicians Kit** . . . . . .77
Test Clamps . . . . . .84
Test Clamp Kits, Laboratory . . . . . .84
**Test Stations, Abacus** . . . . . .107
Testers, Transistor . . . . . .73
Texwipes . . . . . .103
**Thermal Wire Strippers** . . . . . **57, 58, 60**
Tip-O-Dyke Pliers . . . . . .18
Tips, Soldering Iron, Esico . . . . . .71
Tips, Soldering Iron, Ungar . . . . . .65
Tips, Vacuum Probe . . . . . .36
**Tool Kits** . . . . . .77
Torch, Microflame . . . . . .94
Torch, Propane . . . . . .94
Torque Bits & Drivers . . . . . .55
Torque Analyzers . . . . . .55
**Torque Screwdrivers** . . . . . **54, 55**
Torquemaster Screwdrivers . . . . . .55
Transem Tool . . . . . .114
Transistor Tester . . . . . .73
Trays, Instrument . . . . . .86
Trays, Job . . . . . .86
Trays, Stacking . . . . . .86
**Triceps** . . . . . .27
Tweezers, Anti-Wicking . . . . . .29
**Tweezers, Assembly** . . . . . **24, 29**
Tweezers, Beryllium Copper . . . . . .29
Tweezers, Cutting . . . . . .27
Tweezers, Deli-Cut . . . . . .111
Tweezers, Delrin . . . . . .30
Tweezers, Die Handling . . . . . .28
**Tweezers, General Assembly** . . . . . .27
**Tweezers, Glass-Filled** . . . . . .30
Tweezers, Insulated . . . . . .35
**Tweezers, Micro Assembly** . . . . . **23, 25**
**Tweezers, Semi-Conductor** . . . . . **28, 30**
Tweezers, Stainless Steel . . . . . .23
**Tweezers, U.S.A.** . . . . . .26
**Tweezers, Wafer** . . . . . .30
Tweezers, Waf-O-Grip . . . . . .28
Tweezer Sharpener . . . . . .29
Tyna-Mite Grinders . . . . . .89

## U

U.S.A. Tweezers . . . . . .26
Uber Skiver . . . . . .79
**Ultrasonic Cleaners** . . . . . .102
Ungar Soldering Aids . . . . . .64
**Ungar Soldering Irons** . . . . . .65
Uniforms, Clean Room . . . . . 107, 108
Use Chart - E.T.M. . . . . 5
**Utica Pliers** . . . . . .10, 12
Utility Gloves . . . . . .110
Utility Tweezers . . . . . .35

## V

V.C.I. Rust Inhibitor . . . . . .100
Vacu-Base . . . . . .90
Vacu-Vises . . . . . .90
Vacuum Generator . . . . . .38
Vacuum Pump . . . . . 36, 37
**Vacuum Systems** . . . . . **36, 37**
Vanguard Desoldering Irons . . . . . .70
Vari Jet Gun . . . . . .104
Vises, Dytex . . . . . .76
Vises, Flex Twin . . . . . .80
Vises, "Pana" . . . . . .75
Vises, Pin . . . . . .80
Vises, Wilton . . . . . .76

## W

**Wafer Holders, Triceps** . . . . . .27
Wafer Tweezers . . . . . .30
Wassco Soldering Irons . . . . . .69
Weller Soldering Irons . . . . . .72
Wheels, Diamond . . . . . .92
Wilton Positioners . . . . . .76
**Wilton Vises** . . . . . .76
Wipers, Clean Room . . . . . .100
Wire & Ribbon Kits . . . . . .94
**Wire Strippers** . . . . . **11, 58, 59, 60, 85**
Wire Strippers, Thermo-Strip . . . . . .60
Wire Twisters . . . . . .60
Wire Wrap . . . . . .12
Wiring Pliers . . . . . .11
Womens Smocks . . . . . .107
Wooden Applicators . . . . . .104
Work Station, Laminar Flow . . . . . .106
**Work Stations, Opti-Man** . . . . . .95
Wrenches, Midget . . . . . .85
Wrenches, Miniature, Open End . . . . . .56

## X

X-Acto Blades . . . . . .78
**X-Acto Knives** . . . . . **78, 79**
Xcelite Beryllium Copper Tools . . . . . .87
Xcelite Maintenance Kits . . . . . .53
**Xcelite Screwdriver Kits** . . . . . **52, 53**

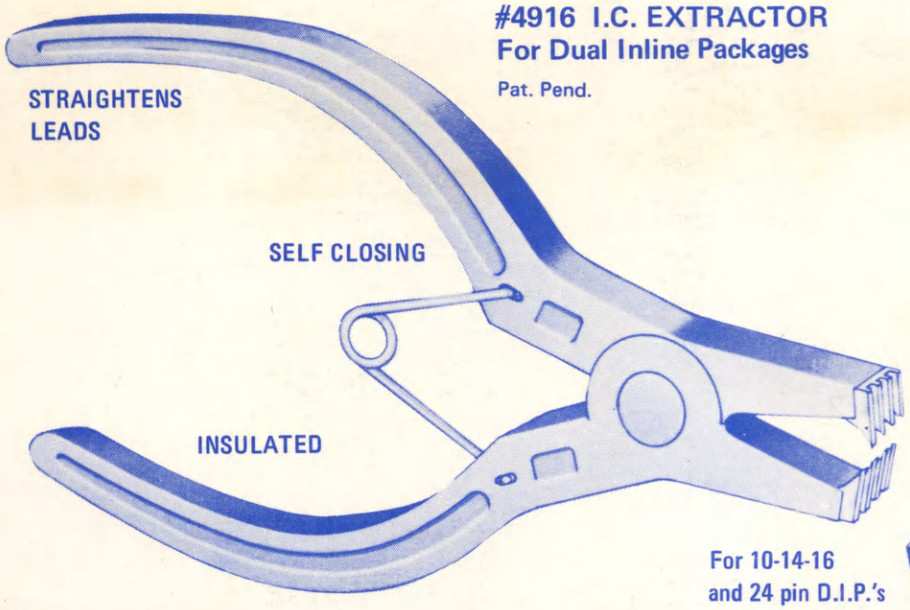
## Z

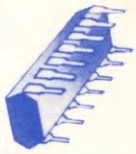
Zeva Soldering Irons . . . . . .67

TECHNI TOOL INC. 1216 ARCH STREET PHILADELPHIA, PENNSYLVANIA
ZIP CODE: 19107 AREA CODE (215) 568-4457-58, 4482-83

## #4916 I.C. EXTRACTOR
### For Dual Inline Packages

Pat. Pend.



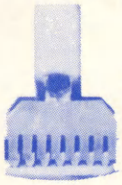
For 10-14-16
and 24 pin D.I.P.'s

- Removes 10 - 14 - 16 or 24 lead D.I.P.'s
- Self retaining action, self closing
- Metal teeth help sink heat away from the leads
- Won't marr board or bend leads
- Insulated for "live board" work Molded of A.B.S.
- Effective in close areas of large scale integration
- D.I.P. does not pop free, but is lifted in a plane perpendicular to the circuit board
- Handle end is designed for lead straightening

1 - 10 $12.95 ea.
11 - 49 11.95 ea.
50 - 99 $10.25 ea.
100 + ask for quotations

### #4917 HEAT SINKS FOR D.I.P.'S

Accommodates 14 or 16 lead units. It is vital for protection during wave soldering or dip soldering operations. Reversible. **$1.25 ea.**

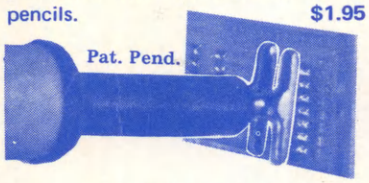


Pat. Pend.

AVAILABLE JANUARY 1970

### #4918 D.I.P. DESOLDERING TIPS

Grooved for soldering or desoldering. Tips have shaped ends for straightening bent connector pins. Model for 14-16 pin units will fit standard soldering pencils. **$1.95 ea.**

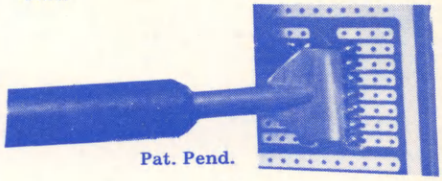


Pat. Pend.

AVAILABLE JANUARY 1970

### #4919 LEAD LIFTER

For flat packs or D.I.P.'s. Lifts clinched or bent over leads when desoldering. To be used in conjunction with #4918 unit. **$1.75 ea.**



Pat. Pend.

AVAILABLE JANUARY 1970

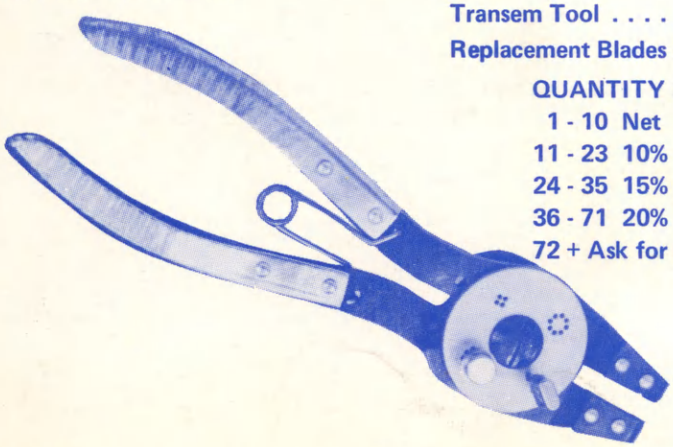
### TK-6
### D.I.P. KIT

Contains:
#4916
#4917
#4918
& #4919
**$19.95**

## #4921 TRANSEM TOOL

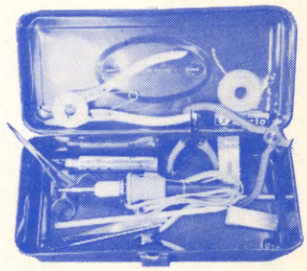
**For lead trimming of transistor and semi-conductor devices.**

Will accommodate all components from 2 to 10 leads
Shear cuts all leads in one operation without shock
Standard length 1/4". Other lengths available
Head configuration used as a component puller
Will not crush TO5 style cans
Also used as heat sink



**Transem Tool . . . . . $14.75 ea.**
**Replacement Blades . . . $6.50 ea.**

**QUANTITY DISCOUNTS:**
1 - 10 Net
11 - 23 10%
24 - 35 15%
36 - 71 20%
72 + Ask for quotations



### KT-5 I.C. KIT

Contains: D.I.P. Extractor, Transem Tool, Solderwick, I.C. Desoldering Kit, Nylon Lead Former, Solder, Chain Nose Plier, Diagonal Cutter, Tweezers, Heat Sink, X-Acto Knife with assortment of blades, probe Plus 4917, 4918, 4919, and tool box.

**$65.00** value . . . . . **$49.95**

### #52 DUAL-IN-LINE INSERT

Insertion of 14 & 16 leads Dual In-Line circuits.

**$8.25 ea.**



ALL PRICES SUBJECT TO CHANGE F.O.B. PHILADELPHIA